TO COMPARE THE VAGINOSCOPIC HYSTEROSCOPY APPROACH WITH STANDARD HYSTEROSCOPY

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Submitted By

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DECLARATION BY THE CANDIDATE

I hereby declare that the thesis entitled **"TO COMPARE THE VAGINOSCOPIC HYSTEROSCOPY APPROACH WITH STANDARD HYSTEROSCOPY"** submitted towards partial fulfillment of the requirements for the award of **MD IN OBSTETRICS & GYNAECOLOGY** degree to BFUHS is a compilation of original work carried out by me under the supervision of **Dr. Ashima Taneja,** Professor& Head, Department of Obstetrics & Gynaecology, **Dr. Pooja Tandon**, Professor, Department of Obstetrics & Gynaecology, &**Dr. Kanupriya Jain,** Former Associate Professor, Department of Obstetrics & Gynaecology. No part of this thesis has formed the basis for the award of any degree previously.

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Dedicated

to

my family

&

Teachers

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DR. BALJINDER KAUR

LIST OF ABBREVIATIONS

IUCD	Intrauterine copper device
D & C	Dilatation and curettage
TVUS	Transvaginal ultrasound
SIS	Saline infusion sonography
OPD	Outpatient department
RFT’s	Renal function test
LFT’s	Liver function test
VAS score	Visual analog score
BMI	Body mass index
OCP	Oral contraceptive pills

ABSTRACT

Introduction: Optimal management of endometrial disease requires accurate and timely diagnosis followed by effective treatment. Modern outpatient hysteroscopy can be utilized as a first line method for diagnostic procedure. No touch technique (vaginoscopy) has been introduced in an attempt to make the procedure less painful as it includes reduced anesthetic risks and is cost effective.

Aim of Study:To compare the feasibility, safety and acceptability of vaginoscopic hysteroscopy and standard hysteroscopy.

Materials & Methods: This is a hospital based prospective study which will be conducted on 100 women in department of obstetrics and gynaecology, DMC&H, Ludhiana.

After taking informed consent patients will be randomised into 2 groups.

- Group A (n= 50) patients who will be undergoing vaginoscopic hysteroscopy
- Group B (n= 50) who will be undergoing standard hysteroscopy

Both groups were compared based on demographic parameters, indication of procedure, difficulty in cervical negotiation, pain score, time required for procedure completion, need of anesthesia and satisfaction of patient.

Results: The mean pain score, duration required for procedure completion and need of anesthesia was less in vaginoscopy group compared to standard hysteroscopy group.

Conclusion: The vaginoscopic approach is less painful, better tolerated,quicker to perform therefore, more successful than standard hysteroscopy technique.

Keywords: Vaginoscoy, standard hysteroscopy, abnormal uterine bleeding.

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INTRODUCTION

Hysteroscopy has become a essential part of the gynaecologic surgeon's armamentarium. Hysteroscopy word is derived from word "haustera" which means womb. It can be considered as a real Copernican revolution of the modern gynaecology, modified the access to the abdominal cavity, and has for the first time enlightened a cramped and dark space, not directly explored until the mid nineteenth century.[1]

Hysteroscopy has become the gold standard method for evaluating the vagina, cervix, cervical canal and the uterine cavity. It is method in which endometrial cavity is visualised and operated through a transcervical approach, which offers the advantage of direct visualisation of the uterine cavity and giving the advantage of taking endometrial samples at the same time for diagnosing endometrial pathologies.

Hysteroscopy with development in designs of endoscopes resulted in smaller diameter instruments that retain the ability to provide high quality image and facilitate the use of hysteroscopy. Hysteroscopy can be used for both diagnostic and therapeutic purposes.

The common indications are abnormal uterine bleeding, postcoital bleeding, thickened endometrium, abnormal pelvic ultrasound findings (polyp, submucous fibroids), infertility, detection of malignancy, missed IUCD, diagnosis of isthomocele, recurrent miscarriages, clinical or ultrasound suspicion of asherman's syndrome or congenital uterine anomaly.[2]

It is not recommended in active pelvic infection including genital herpes infection, viable intrauterine pregnancy, pyometra, cervical cancer, coagulopathy, coronary heart disease and excessive uterine bleeding.[3]

The various types of hysteroscopies are:

DIAGNOSTIC HYSTEROSCOPY: The goal here is to evaluate the uterine cavity to obtain a sample of the endometrium, for diagnosis of

hyperplasia or neoplasia, or to identify structural abnormalities, typically focal lesions like polyps, adhesions or myomas and uterine septum. Hysteroscopy provides more information than blind procedures like dilatation and curettage.

THERAPEUTIC HYSTEROSCOPY: A number of intrauterine procedures can be performed under endoscopic direction, including resection of polyps and myomas, to take endometrial biopsies, removal of retained products of conception, division of uterine septum and removal of embedded intrauterine contraceptive devices.

OFFICE HYSTEROSCOPY: The term ‘‘office setting’’ is referred to the performance of hysteroscopy, either diagnostic or operative, in an outpatient basis.[4] Office hysteroscopy is an excellent method of identifying and treating intracavitary uterine lesions. It has become easy to learn and perform as an aid of modern technological applications.

This procedure is safe, accurate, provides immediate results under direct visualisation, and offers the additional benefit of histological confirmation. The discomfort of patients is minimal and it is acceptable procedure without analgesia or anesthesia[5,6] Additionally it requires minimal recovery time allowing patients to resume daily activities quickly.[7] It also reduces the nosocomial infection and psychological and economic burden of hospital admission and is convenient for both the patient and the doctor.[8]

Hysteroscopy is performed using two techniques:

1) Standard hysteroscopy
2) Vaginoscopic hysteroscopy

STANDARD HYSTEROSCOPY: Hysteroscopy uses 5 mm hysteroscope with a 4 mm inner diameter telescope and 5 mm outer diameter single flow diagnostic sheath, Sim’s speculum and vulselum to grasp the uterine cervix and steady the uterus. Cervical dilatation

and local anesthesia are required therefore hysteroscopy is considered invasive and painful procedure.[9]

Adequate distention of the uterus is imperative for performing hysteroscopy. Fluid (saline) or gas (carbon dioxide) are most commonly used distension media used in hysteroscopy. Fluid distension media allow the irrigation of the uterine cavity for better visualisation Normal saline is preferred due to more patient comfort, better view, cost effectiveness and patient's tolerability. Pressure is maintained with electronically controlled suction irrigation pump maintaining constant pressure of <70 mmhg.[10]

Advantages of standard hysteroscopy are that it allows direct visualisation of the intrauterine cavity making minimal invasive diagnosis and treatment in the same sitting to make one stop diagnosis. Hysteroscopy has come a long way up to the combination of ultrasound, contrast sonography and mini surgical instruments providing the possibility for every trained examiner to perform a one stop uterine diagnosis.[11] The major disadvantages of standard hysteroscopy are pain and infections due to instrumentation and others are cervical trauma and bleeding.

In subsequent years, numerous studies have indicated that hysteroscopy have many advantages in comparison with the blind techniques (dilatation and curettage, endometrial biopsy, pipelle biopsy) and diagnostic accuracy of hysteroscopy is also comparable. In addition, with all the advancements, hysteroscopy generates cost savings, and has greater compliance rate among patients.

VAGINOSCOPIC HYSTEROSCOPY: The vaginoscopic approach also known as "no touch technique" use a small diameter irrigating endoscope which smoothly traverse the vaginal canal and cervix and avoids the use of speculum and tenaculum and minimizes the patient pain and discomfort. [12] It uses 1-2 mm lower in caliber telescopes compared to hysteroscopy.

Advantages of vaginoscopic hysteroscopy over traditional hysteroscopy are that vaginoscopic approach allows greater intracavitatory manoeuvrability of the hysteroscope, as there is no restriction on external movement caused by the presence of a vaginal speculum. This is advantageous in certain patient groups (e.g. restricted hip abduction/flexion or an inability to lie supine because of respiratory disease, obesity, or enlarged or acutely flexed uteri).In addition, nulliparous women, those who have not been sexually active and those that have atrophy of the genitals. [13]

Vaginoscopy approach found definite reduction in pain during the procedure, less invasive thereby decreasing the complication rate , patient pain tolerance is much better [14,15] due to reduction in size of the hysteroscope calibre and a rare need for anesthetia.[10] It significantly improve efficiency, increase patient satisfaction, save medical resources, and improve the cost-benefit ratio and it is worthwhile to promote its full use in outpatient hysteroscopy.[16]

Overall vaginoscopy offers more comfortable option for evaluating gynaecological concerns compared to traditional methods. This all supports the use of vaginoscopy over the traditional hysteroscopy. Pain continues to be represent the main limiting factor to a large scale use of traditional hysteroscopy.

The “one stop” hysteroscopy and vaginoscopy methods have benefits for both the clinicians, patients and health services. Both hysteroscopy and vaginoscopy are continually evolving with advancements in technology which have led to the miniaturisation of hysteroscopes without compromising optimal performance, making it an increasingly valuable tool in gynaecological care. Both play an important role in the diagnosis and management of various gynaecological conditions, improving patient care and outcome.

AIMS AND OBJECTIVES

- To compare the feasibility, safety and acceptability of vaginoscopic hysteroscopy and standard hysteroscopy.
- To evaluate the satisfaction of the patient and the surgeon in both the techniques.

REVIEW OF LITERATURE

HISTORY

Hysteroscopy is the leading endoscopic tool in cases of endometrial pathology. Hysteroscopy was particularly innovative in the early 19th century and attracted the interest of more researchers in the following years. Hysteroscopy have evolved over years. The blind methods used for diagnosing the endometrial pathologies were:

1. DILATATION AND CURRETAGE: Earlier the "gold standard" was dilatation and curettage (D&C), which requires dilatation of the cervix to allow insertion of a curette into the endometrial cavity. Dilatation and curretage has 100% sensitivity and 98.15% specificity in detecting premalignant and malignant endometrial pathologies. This technique allows for the most thorough sampling of the endometrium but requires anesthesia for cervical dilatation. D&C also readily allows for a fractional curettage, with sampling of both the endometrial and the endocervical mucosa. Complications of D&C can include hemorrhage, infection, or perforation. [16]

2. ENDOMETRIAL BIOPSY: Endometrial biopsy is generally performed in the office with a pipelle instrument. The biopsy can be performed quickly, with few complications, and is generally well tolerated by the patient. It has a high sensitivity for detecting endometrial cancer and hyperplasia, but a low sensitivity for detecting other intracavitary lesions including polyps and submucosal fibroids. Pipelle biopsy noted that the detection rate of endometrial cancer was 99.6% in postmenopausal women and 91% in premenopausal women. The detection rate for atypical hyperplasia was 88%, and the specificity was 98% to 100%. Lesions encompassing a small surface area may be missed. Some studies suggest that the biopsy instrument samples between 10% to 25% of the endometrial cavity. [1]

3. TRANSVAGINAL ULTRASOUND: TVUS is helpful in evaluating women with abnormal uterine bleeding who have a negative endometrial biopsy result. TVUS is most sensitive in detecting disease

in patients with postmenopausal bleeding. In premenopausal TVUS should be scheduled between days 4 to 6 of menstrual cycle, when the endometrium is the thinnest. TVUS permits rapid assessment of size, position, and presence of uterine fibroids. The texture of the endometrium can be evaluated for homogeneity or heterogeneity. Adnexal pathology and pelvic tenderness can be assessed. Measurement of the endometrial echo in the postmenopausal woman is helpful in determining whether endometrial biopsy or further imaging studies are necessary.[15]

4. SALINE INFUSION SONOGRAPHY: SIS infuses saline into the endometrial cavity during TVUS to enhance the image. SIS allows the clinician to evaluate the uterus for intracavitary lesions more accurately than TVUS. Causes of increased endometrial thickness can be clearly differentiated with saline infusion. Increasingly, gynecologists are using the more streamlined concept of ‘‘one-stop evaluation’’ for menstrual disorders by combining physical examination, basic laboratory studies, and endometrial imaging (e.g., TVUS or SIS) with endometrial biopsy as indicated.[15]

The improvement of hysteroscopic equipment offered patients better diagnosis and treatment. Since 1980, hysteroscopy has been established as the standard procedure for the diagnosis and treatment of endometrial and endocervical pathology.[17] During mid-1980, hysteroscopy replaced blind D and C as the standard procedure for precise diagnosis of intrauterine pathology. Italians were first to introduce the technique in 1997, and over the past twenty years, office hysteroscopy has emerged as a gold standard technique in detecting endometrial and endocervical pathology over traditional methods.

The introduction at the beginning of the 1990s of new scopes (especially fiberscopes) with a diameter ranging between 1.2 and 3 mm, it has been possible to produce not only very thin diagnostic sheaths, but also operative sheaths with a diameter equal to or less than 5 mm. This has enabled the physician to utilize, for a diagnostic

procedure, an operative scope equipped with mechanical instruments and with a final diameter not exceeding 5 mm. The possibility of visual examination of the uterine cavity and contextual operative facilities has provided endoscopists with the perfect ‘diagnostic’ tool that can examine the cavity.[18]

In 1996, Bettocchi[17] developed the first operative "office" hysteroscope, which was used at an possible to curve. Moreover, the outdated concept of “diagnostic hysteroscopy” has changed to “ office hysteroscopy” in which “see and treat” of any pathological findings at the procedure can be achieved where applicable. During late 1990’s to early 2000’s, hysteroscopy was well-established as a valuable tool for evaluating uterine abnormalities. However, it was recognised that procedure could be uncomfortable for patients and sometimes required anesthesia. Efforts were made to improve patient comfort and accessibility, leading to exploration of better alternative techniques. [18]

In 1997, Bettochi et al developed the “vaginoscopic approach” or no-touch technique “for the atraumatic insertion of the hysteroscope into the external uterine orifice.

Mid-2000’s to early 2010’s-technological advancements and procedural advancements paved the way for the development of vaginoscopy as a less invasive alternative to hysteroscopy. Flexible scopes and improved imaging technology made it possible to visualise the vaginal walls and cervix with greater clarity and precision. Vaginoscopy gained recognition as a valuable tool for routine gynaecological exams and the detection of vaginal and cervical abnormalities.

In year 2004 Bettocchi and Selvaggi[19,20] reported their experience performed using the vaginoscopic technique, eliminating the use of a speculum and a tenaculum and found that as many as 99.1% of the patients reported no discomfort related to the procedure. The mean pain score was significantly lower in the group without the use of speculum.[21]

Bettocchi S, Nappi L, Ceci O, et al. Office hysteroscopy. Obstret Gynecol Clin North Am 2004 reported the incidence of complications between these two techniques, where the chance of post procedural infection did not differ; otherwise all other complications were attributed to the traditional hysteroscopic approach.[20] Procedural success was comparable between the techniques and where one technique failed, the other proved successful in 75% cases.

In 2005, Emanuel and Wamsteker first reported the use of a hysteroscopic morcellator (Smith & Nephew Endoscopy, Inc., Andover, MA) for removal of endometrial polyps and submucous leiomyomas.[22]

2010's to 2020's –Vaginoscopy continued to gain acceptance and popularity among gynaecologists worldwide. Its advantages, including reduced discomfort for patients and absence of need of anesthesia in many cases, made it a preferred option for routine screening and diagnostic procedures.

Hysteroscopy continues to play an important role in gynecologic practice today, with ongoing developments in technology and techniques.[17] The use of smaller, more flexible hysteroscopes has made hysteroscopy less invasive and more comfortable for patients. The availability of high-definition cameras and advanced imaging software has improved visualization and accuracy during hysteroscopic procedures. In addition, new methods for uterine distension and tissue removal, such as mechanical morcellation and bipolar electrosurgery, have expanded the range of procedures that can be performed hysteroscopically. With ongoing advancements in hysteroscopic technology and techniques, it is likely that hysteroscopy will continue to play an important role in the diagnosis and treatment of gynaecologic pathology in the future. Over the last 30 years, hysteroscopy became the first line investigation of the diagnosis and treatment of endometrial pathology.

The introduction of "office" hysteroscopy has made the procedure more accessible and convenient for patients, as it can be performed in the

clinic without the need for anaesthesia or hospitalization.[17] The vaginoscopic approach is associated with reduction in pain, procedural time and side effects, when compared to traditional approach to office hysteroscopy, which employs the use of a vaginal speculum.[19]

Both vaginoscopy and standard hysteroscopy techniques have comparable success rate. In year 2014 Maher PJ, Jagasia N, McIlwaine K, Cameron M, Readman E. Department of Endosurgery, Mercy Hospital for Women, that there was no significant difference in rates of acceptance between patients who underwent the vaginoscopic approach compared to those who had a traditional hysteroscopy (91.5% versus 90.0%, P = 0.61). Both methods had similar overall success rates.[23]

A study in 2015 by Chapa HO, Venegas G. Vaginoscopy compared to traditional hysteroscopy for hysteroscopic sterilization. A randomized trial. J Reprod Med.[24] concluded that the time for treatment completion was 16 minutes (mean) (range, 13-21) in the traditional group versus vaginoscopy time of 9 minutes (mean) (range, 7-11)

Prathiba M. De Silva [a], Alasdair Carnegy [b], Paul P. Smith [a], T. Justin Clark.[5] Vaginoscopy for office hysteroscopy in year 2016 founds that the vaginoscopic approach was associated with a statistically significant reduction in procedural time and pain compared to standard hysteroscopy. It also founds that the failure rates between the two techniques were similar (p = .90).

Smith et al in 2019 also reported a shorter examination time in vaginoscopy than in hysteroscopy [13].

In year 2019, Smith PP, Kolhe S, O'Connor S, Clark TJ [25] reported that the median time taken to complete vaginoscopy was 2 minutes compared with 3 minutes for standard hysteroscopy (P < 0.001). The mean pain score was 42.7 for vaginoscopy, which was significantly less than standard hysteroscopy 46.4 (P = 0.02).

A study by Prathiba M. De Silva, Alasdair Carnegy,Paul P. Smith,T. Justin Clark[26] in year 2020 reported that in vaginoscopy where there is

less use of instrumentation ,the need of anesthesia is less compared to hysteroscopy group.

Gupta N, Jahan U, Yadav A, et al. In year 2021 Comparative Evaluation of Vaginoscopic vs Traditional Hysteroscopy[9] also reported that those who underwent “no-touch hysteroscopy” had the lowest requirement of local anesthetic.

A study was conducted by Tien, Chin-Tzuet [27] al in 2021 shows that the median pain score was 3 for vaginoscopy which was significantly lower than that for standard hysteroscopy which was 5.

The vaginoscopy technique due to less use of instrumentation is less painful than that of hysteroscopy in which sim’s speculum and vulselum is used. A study in year 2021, by Gupta N, Jahan U, Yadav A, et al.[9] reported that the VAS score was less in vaginoscopy group compared to hysteroscopy group.

The time duration required to perform vaginoscopy was much less than that required by standard hysteroscopy method due to less requirement of anesthesia and instrumentation. A study by Tien CT, Li PC, Ding in 2021 reported that examination time in vaginoscopy is shorter than in hysteroscopy. [27].

A study was conducted by Tien, Chin-Tzuet [27] al in 2021 which shows that the mean time was 5.71 for traditional hysteroscopy and 4.44 for vaginoscopic approach. Vaginoscopy compared to traditional hysteroscopy for hysteroscopic sterilization. A randomized trial [28] in 2015 stated that the time for treatment completion was 16 minutes (mean) (range, 13-21) in the traditional group versus vaginoscopy time of 9 minutes (mean) (range, 7-11).

A study by Liao L, Peng Y, Lu J, Wang Z, Xu J, Chen X, Chen H, Zhang X. Effect of Vaginoscopy versus Conventional Hysteroscopy on Pain in june 2022[29] reported that the VAS scores immediately after the examination and 30 minutes after the examination were both significantly higher in the hysteroscopy group than in the vaginoscopy group ($P < 0.01$).

Liao L, Peng Y, Lu J, Wang Z, Xu J, Chen X, Chen H, Zhang X [32] in year 2023 concluded that the time taken for the examination varied between the different hysteroscopic methods, with the hysteroscopy group taking the longest time compared to the vaginoscopy group ($P < 0.01$). The VAS scores immediately after the examination and 30 minutes after the examination were both significantly higher in the hysteroscopy group than in the vaginoscopy group ($P < 0.01$).

Outcome comparison between vaginoscopy and standard hysteroscopy: A retrospective cohort study in year 2021 Chin-Tzu Tien, Pei-Chen Li, Dah-Ching Ding [31] state that there were no differences in the surgical complication rate between vaginoscopy and standard hysteroscopy. In year 2014 Maher PJ, Jagasia N, McIlwaine K, Cameron M, Melbourne, Victoria.[23] demonstrated differences in the surgical complication rate between vaginoscopy and standard hysteroscopy

A study was conducted by Tien, Chin-Tzuet [27] al in 2021 which shows the success rates of vaginoscopy and standard hysteroscopy was comparable (95.5% vs 96.3%) and there was no significant differences in the surgical complication rate between vaginoscopy(n=4) and hysteroscopy(n =3).

MATERIALS AND METHODS

SOURCE OF DATA

A hospital based, prospective study was conducted on randomly selected patients in the department of Obstetrics and Gynaecology at Dayanand Medical College and Hospital, Ludhiana (Punjab), a tertiary care hospital.

METHODS OF COLLECTION OF DATA

The current study was conducted on 100 patients attending OPD department of Obstetrics and Gynaecology at Dayanand Medical College and Hospital, Ludhiana. The study was approved by the Ethical committee and Faculty of Medical Sciences. 100 patients from age 21 to 75 years with complaints of infertility, abnormal uterine bleeding, chronic pelvic pain and postmenopausal bleeding were randomized into 2 groups.

- Group A (n=50) patients in whom vaginoscopic hysteroscopy was done.
- Group B (n=50) patients in whom standard hysteroscopy was done.

INCLUSION CRITERIA

- Infertility
- Abnormal uterine bleeding
- Chronic pelvic pain
- Postmenopausal bleeding

EXCLUSION CRITERIA

- Pregnant women
- Cervical polyp and cervical stenosis
- Active infection of the genital tract
- Cardiovascular disease
- Severe obstructive airway disease
- Acute generalized peritonitis
- Blood dyscrasias and coagulopathy

All patients fulfilling inclusion criteria was selected. A detailed history was taken and clinical examination was done after obtaining informed consent. The following patient characteristics were recorded: age; BMI (kg/m^2); level of education; residence; socioeconomic class. Any relevant past history was noted. Past obstertric history variables included parity and mode of deliveries and menopausal status was also noted.

Routine investigations were performed for all patients including CBC , random blood sugar, PTI/INR, RFT'S and LFT'S. All cases with suspected endometrial pathology due to symptomatology, sonographic evidence, unexplained infertility or common clinical indications underwent hysteroscopy. Patients were explained about the procedure beforehand.

Hysteroscopic procedure was performed using standard hysteroscopic or vaginoscopic hysteroscopic method.

TYPE OF ANESTHESIA: local anesthesia, regional anesthesia, general anesthesia or no anaesthesia was noted.

All procedures were monitored on a high-resolution screen. The women were positioned in the dorsolithotomy position after emptying the bladder, with comfortable leg supports. Hysteroscopy uses 5 mm hysteroscope with a 4 mm inner diameter telescope and 5 mm outer diameter single flow diagnostic sheath. In the traditional hysteroscopy approach, after bimanual examination, a Sim speculum was inserted into the vagina to visualize the cervix. The anterior cervical lip was grasped with a tenaculum or vulselum. The hysteroscope was steered through the cervix. The cervical canal was dilated only if it was too narrow to admit the hysteroscope. The uterine cavity and endocervical canal were inspected systematically. [(15)]

Vaginoscopy uses hysteroscope smaller in diameter than the standard hysteroscopy method. In the vaginoscopic approach, after a bimanual examination, the hysteroscope was inserted into the lower vagina, and normal saline solution was infused at a pressure of 150 mm Hg. The

hysteroscope was directed toward the cervix and, on identification of the external os, was guided into the cervical canal and then the uterine cavity. The endocervical canal and uterine cavity were inspected systematically.[15]

Distension medium was used to distend the endometrial cavity. The endometrial surface was inspected systematically, and tubal ostia were identified.

Cervical negotiation was assessed in both the vaginoscopy and standard hysteroscopy group as easy and difficult.

A questionnaire was given to fill after the procedure regarding the procedural pain at the start of the procedure, during the procedure, 30 minutes after the procedure and about the satisfaction of the patient to the procedure on a scale of 1-10. Pain was assessed in both the groups by VAS score on a scale of 1-10. It was assessed at different levels - during introduction of hysteroscope, during procedure and 30 minutes after the procedure.

Operative time was recorded from the start of procedure. After the procedure, women were monitored for 3-4 hours and then discharged.

STATISTICAL ANALYSIS

Data were described in terms of range; mean ±standard deviation (± SD), frequencies (number of cases) and relative frequencies (percentages) as appropriate. To determine whether the data were normally distributed, a Kolmogorov-Smirnov test was used. Comparison of quantitative variables between the study groups was done using Mann Whitney *U* test for non-parametric data. For comparing categorical data, Chi square ($\chi 2$) test was performed and fisher exact test was used when the expected frequency is less than 5. A probability value (*p* value) less than 0.05 was considered statistically significant. All statistical calculations were done using (Statistical Package for the Social Science) SPSS 21.0 version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows.

OBSERVATION AND RESULTS

In our study of 100 patients, were randomised into two groups:

Group A (n=50) patients who underwent vaginoscopy.

Group B (n=50) patients who underwent standard hysteroscopy.

The results were analysed according to:

1. AGE

TABLE 1 A: The distribution of study population according to age

	n	Minimum	Maximum	Mean	Std deviation
AGE	100	22	73	45.77	12

The mean age of our study population was 45.77 years with standard deviation of 12

TABLE 1 B: The mean age of the study population in both groups

	Group A		Group B		Z	p-value
	Mean	SD	Mean	SD		
AGE(YRS)	47.66	12.29	43.88	11.52	-1.587	0.116

The mean age of the vaginoscopy group was 47.66years with a standard deviation of 12.29 vs a mean age of hysteroscopy group was 43.8 years with a standard deviation of 11.52 with p-value of 0.116 which was statistically insignificant.

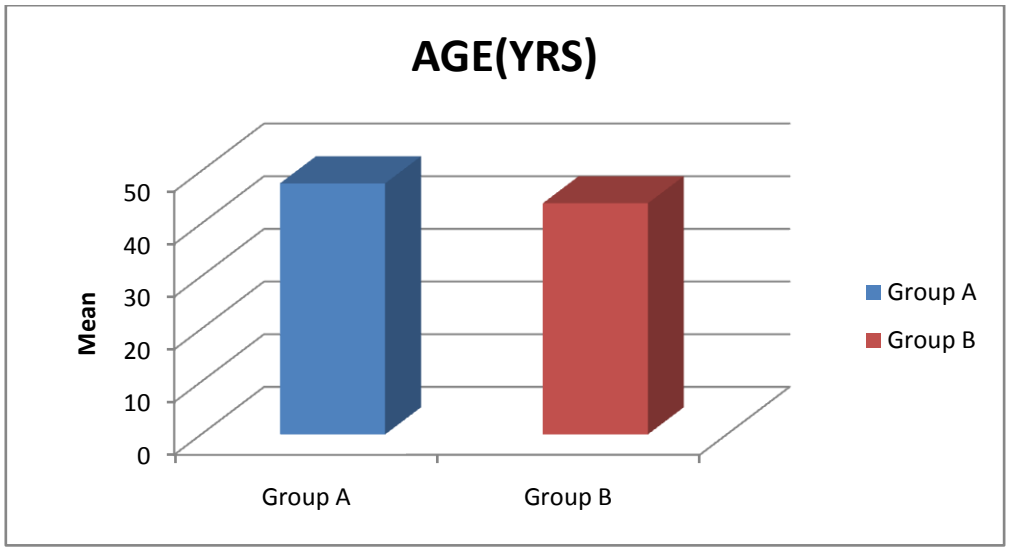

FIGURE 1A: Distribution of study population according to age.

TABLE 1 C: Distribution of study population according to age in both the groups

		Group A		Group B		Total	Chi-square value	p-value
	years	No. of cases	%age	No. of cases	%age			
Age group	< 40	14	28.0%	26	52.0%	40	8.938	0.030
	41-50	12	24.0%	12	24.0%	24		
	51-60	17	34.0%	6	12.0%	23		
	> 60	7	14.0%	6	12.0%	13		
Total		50	100.0%	50	100.0%	100		

In our study ,28% vs 52% population belonged to age <40 years in group A and group B respectively.

Of the population 24% vs 24% belonged to age between 41-50 years in group A and group B respectively.

In the age group of 51-60 years, 34% vs 12% belonged to group A and group B respectively.

Above the age of 60 years ,14% vs 12% from group A and group B respectively

p-value of all age groups was 0.030 which was statistically significant.

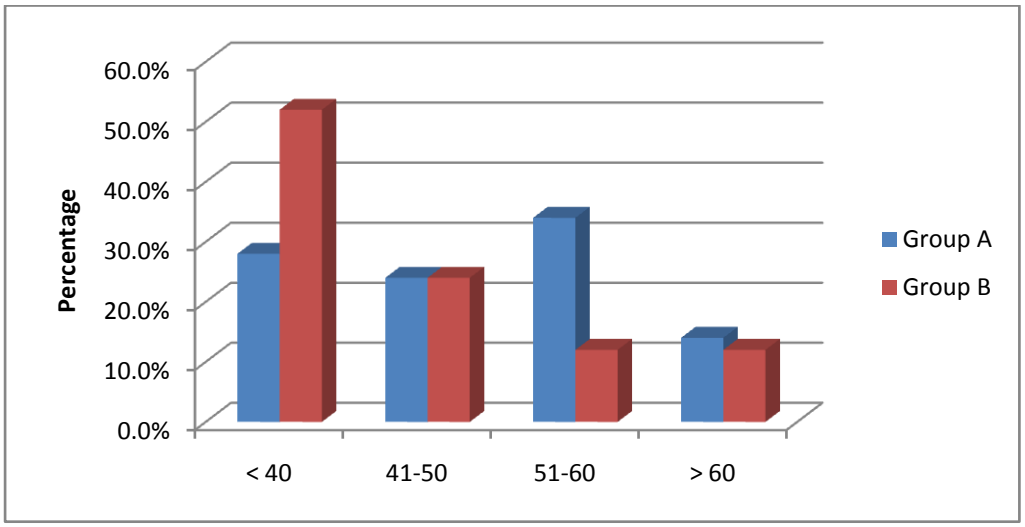

FIGURE 1 B : Distribution of study population of vaginoscopy and hysteroscopy according to age group.

2. BODY MASS INDEX (BMI)

TABLE 2 A: Distribution of study population according to BMI

	N	Minimum	Maximum	Mean	Std. Deviation
BMI	100.0	22.60	33.50	27.04	2.41

The mean BMI in our study group in our study population was 27.04 kg/m^2 with standard deviation of 2.41

TABLE 2 B: Distribution of study population acc to mean BMI in both the groups

	Group A		Group B		Z	p-value
	Mean	SD	Mean	SD		
BMI	26.79	2.22	27.28	2.59	1.019	0.311

The mean BMI in was 26.79 kg/m^2vs 27.28 kg/m^2 with a standard deviation of 2.22 vs 2.59 in both groups respectively with p-value of 0.311 which was statistically insignificant.

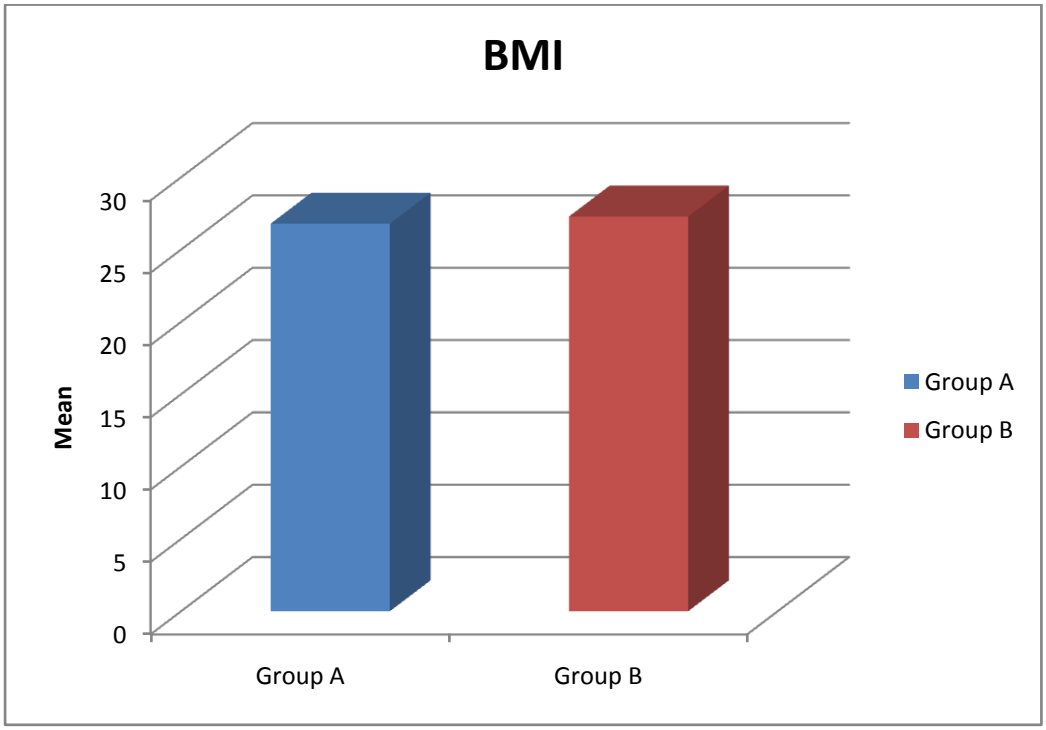

FIGURE 2 A: Distribution of study population according to BMI

TABLE 2 C: Distribution of study population acc to BMI in both the groups

		Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
BMI GROUP	18.5-24.9	12	24.0%	11	22.0%	23	1.778	0.411
	25-29.9	35	70.0%	32	64.0%	67		
	> 30	3	6.0%	7	14.0%	10		
Total		50	100.0%	50	100.0%	100		

In our study, 24% vs 22% had normal BMI between (18.5- 24.9) in group A and group B respectively. Of the population, 70% and 64% were overweight (25-29.9) in group A and group B respectively. In our study, 6% and 14% had BMI >30 in group A and group B respectively.With p-value of 0.411 which was statistically insignificant

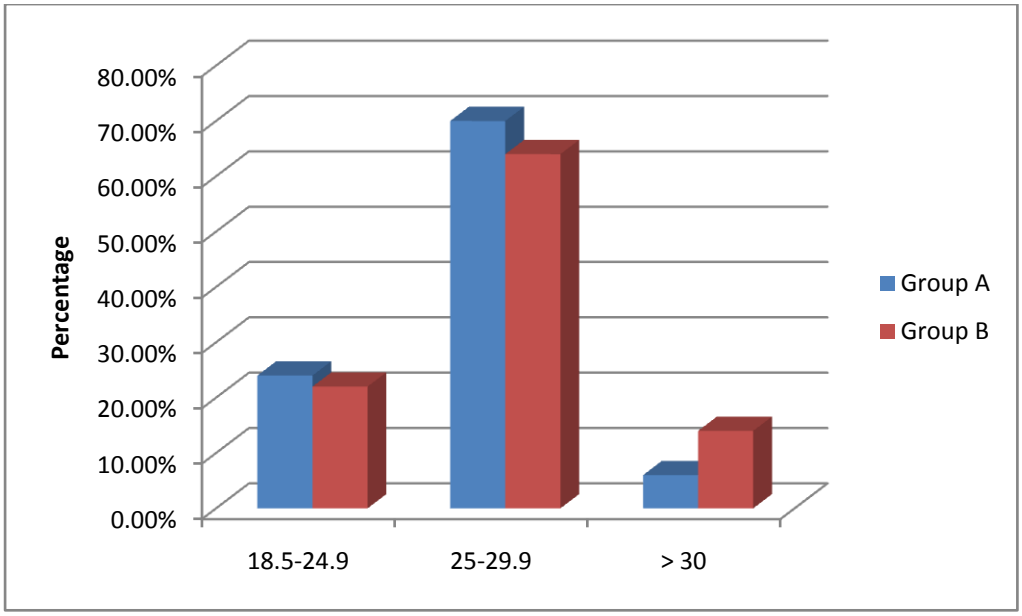

FIGURE 2 B: Distribution of study population of vaginoscopy and hysteroscopy group according to BMI.

3. PARITY

TABLE 3: Distribution of population according to parity in vaginoscopy and hysteroscopy group.

		Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
PARITY	MULTIPAROUS	43	86.0%	45	90.0%	88	0.379	0.538
	NULLIPAROUS	7	14.0%	5	10.0%	12		
Total		50	100.0%	50	100.0%	100		

Of the population, 86% vs 90% of multiparous were in group A and group B respectively and this was statistically insignificant with a p-value of 0.538 .In our study, 14% vs 10% of nulliparous were in group A and group B respectively with a p-value of 0.538 which was statistically insignificant.

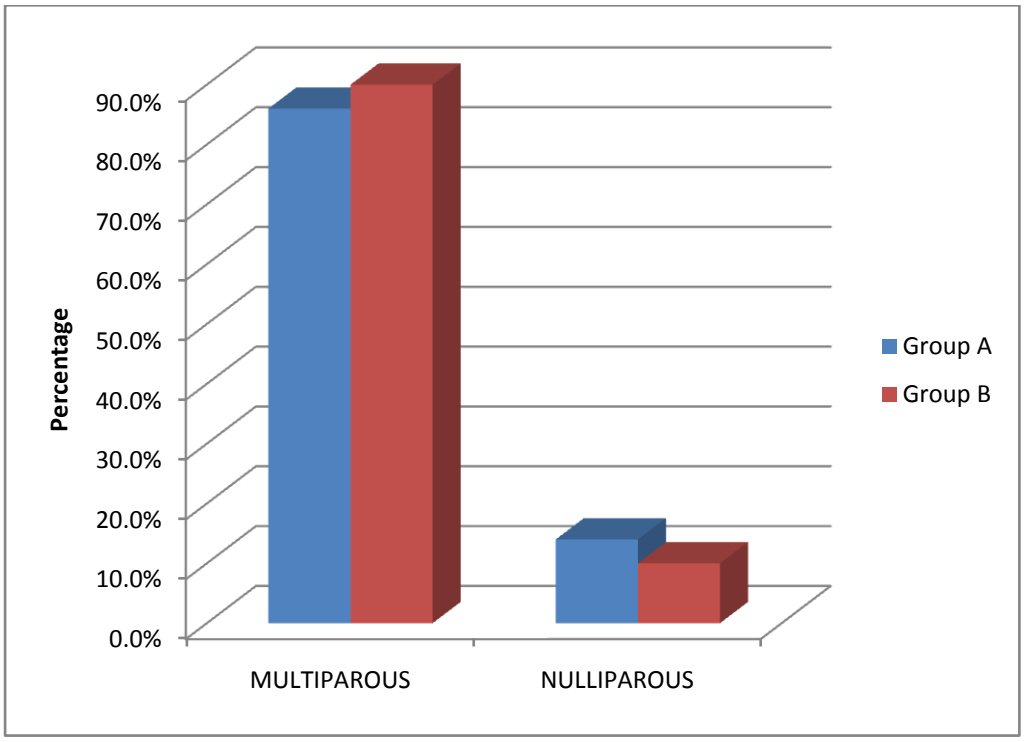

FIGURE 3: Distribution of study population of vaginoscopy and hysteroscopy group according to parity.

4. RESIDENCE

TABLE 4: Distribution of population according to residency in vaginoscopy and hysteroscopy group

		Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
RESIDENCE	RURAL	26	52.0%	28	56.0%	54	0.161	0.688
	URBAN	24	48.0%	22	44.0%	46		
Total		50	100.0%	50	100.%	100		

In our study, 52% vs 56% belonged to rural areas in group A and group B respectively with a p-value of 0.688 which was statistically insignificant.

Of the population, 48% vs 44% belonged to urban areas in group A and group B respectively with p- value of 0.688 which was statistically insignificant.

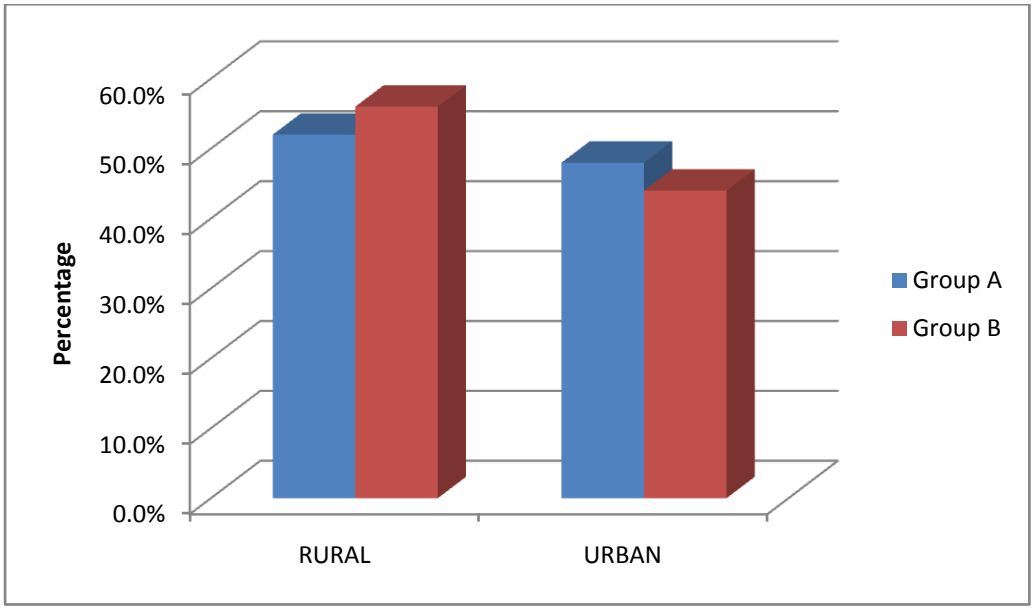

FIGURE 4: Distribution of study population according to residence in vaginoscopy and hysteroscopy group.

5. EDUCATION

TABLE 5: Distribution of study population according to education

		Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
EDUCATION	UNDERGRADUATE	35	70.0%	17	34.0%	52	13.807	0.001
	GRADUATE	10	20.0%	17	34.0%	27		
	POSTGRADUATE	5	10.0%	16	32.0%	21		
Total		50	100.0%	50	100.0%	100		

A majority of population in our study group, 70% vs 34% were undergraduates in group A and group B respectively.

In our study, 20% vs 34% population were graduates in group A and group B respectively.

Of the population, 10% and 32% were postgraduates in group A and group B respectively.

With p-value of 0.001 which is stastically significant.

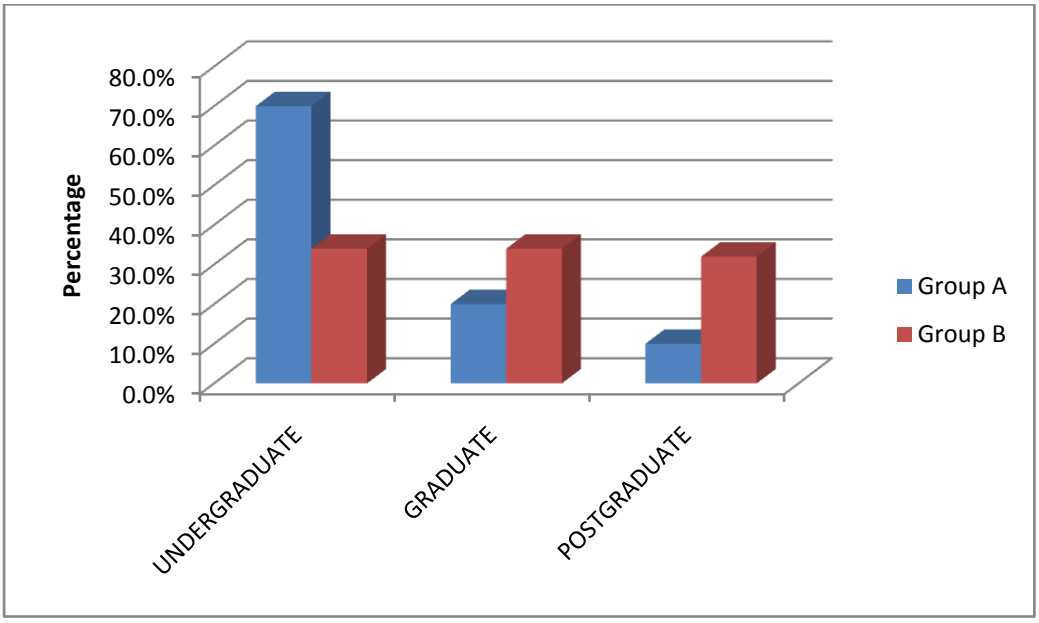

FIGURE 5 : Distribution of study population according to education in vaginoscopy and hysteroscopy group.

6. OCCUPATION

TABLE 6 :Distribution of study population according to occupation in vaginoscopy and hysteroscopy

		Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
OCCUPATION	EMPLOYED	21	42.0%	25	50.0%	46	0.644	0.422
	UNEMPLOYED	29	58.0%	25	50.0%	54		
Total		50	100%	50	100%	100		

In our study, 42% vs 50% population were employed in group A and group B respectively.

Of the population, 58% vs 50% were unemployed in group A versus group B respectively

with p-value of 0.422 which was statistically insignificant.

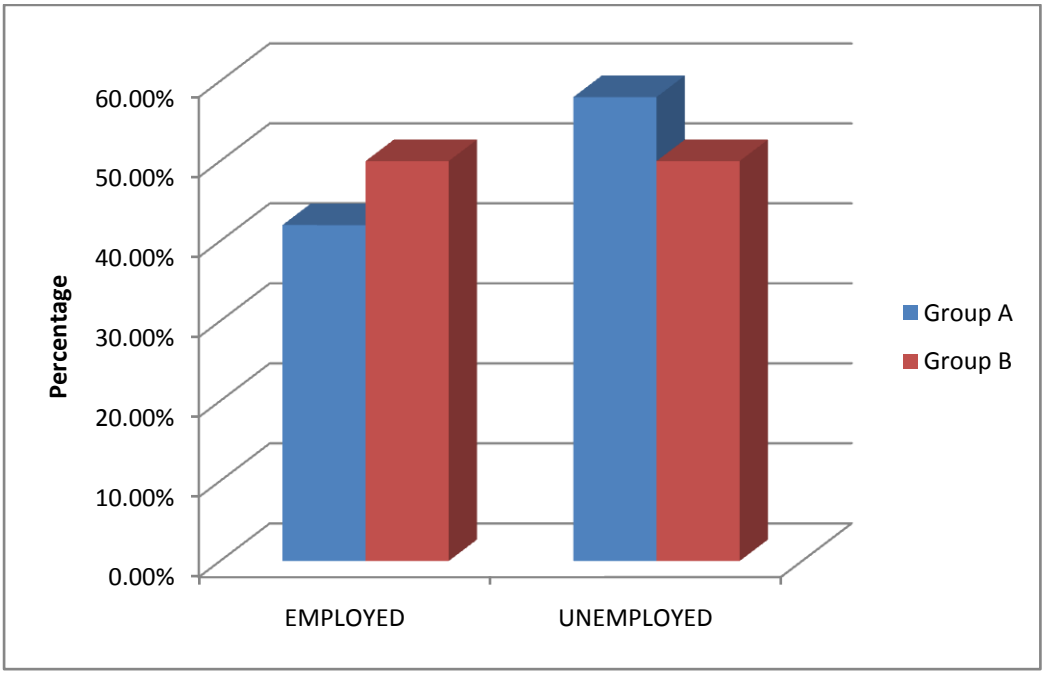

FIGURE 6: Distribution of study population according to occupation in vaginoscopy and hysteroscopy

7. SOCIO ECONOMIC STATUS

The socio-economic status of the study population was decided according to modified kuppuswamy scale

TABLE 7: Distribution of study population according to modified kuppuswamy scale.

		Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
SOCIOECONOMIC HISTORY	LOWER CLASS	18	36.0%	0	0.0%	18	32.353	0.001
	LOWER MIDDLE	4	8.0%	20	40.0%	24		
	UPPER LOWER	7	14.0%	9	18.0%	16		
	UPPERMIDDLE	13	26.0%	7	14.0%	20		
	UPPER CLASS	8	16.0%	14	28.0%	22		
Total		50	100.%	50	100%	100		

In our study, 36% vs0% population belonged to lower class in group A and group B respectively

Of the study population, 8% vs 40% belonged to lower middle class in group A and group B respectively.

Of the population, 14% vs 18% were part of upper lower class in group A and group B respectively

Upper middle class population in group A and group B was 26% vs 14% respectively

In our study groups, upper class population was 16% vs 28% in group A and group B respectively

With p-value of 0.001 which is statistically significant.

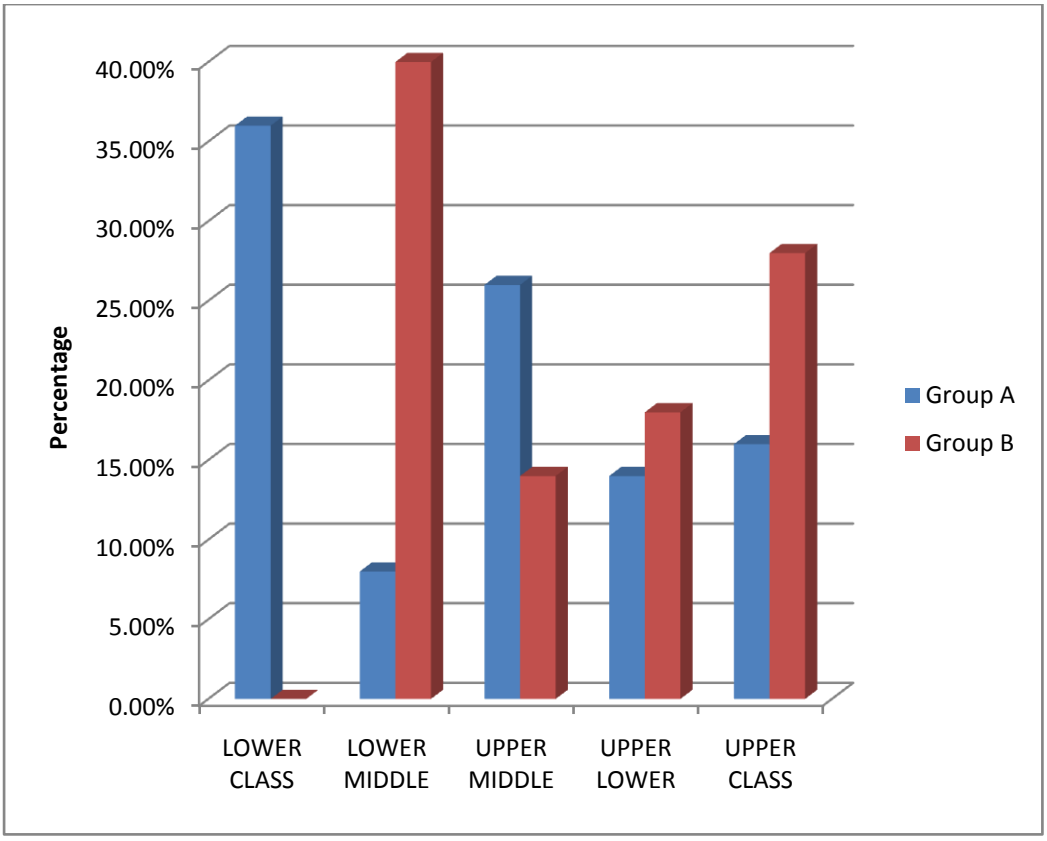

FIGURE 7: Distribution of study population according to modified kuppuswamy scale in vaginoscopy and hysteroscopy group.

8. CONTRACEPTION

TABLE 8: Distribution of population according to use of contraception

		Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
CONTRACEPTION	BARRIER	17	34.0%	22	44.0%	39	12.659	0.005
	DMPA	0	0.0%	1	2.0%	1		
	IUCD	2	4.0%	11	22.0%	13		
	OTHERS	31	62.0%	16	32.0%	47		
Total		50	100.0%	50	100.0%	100		

In our study, 34% vs 44% patients used barrier method of contraception in group A and group B respectively

Of the population, none vs 2% use DMPA as method of contraception in group A and group B respectively

In our study, in group A and group B 4% vs 22% use IUCD as a method of contraception respectively

Of the population, 62% vs 32% use others (OCP'S,sterilisation) method of contraception in group A and group B respectively

With p-value of 0.005 which is statistically significant.

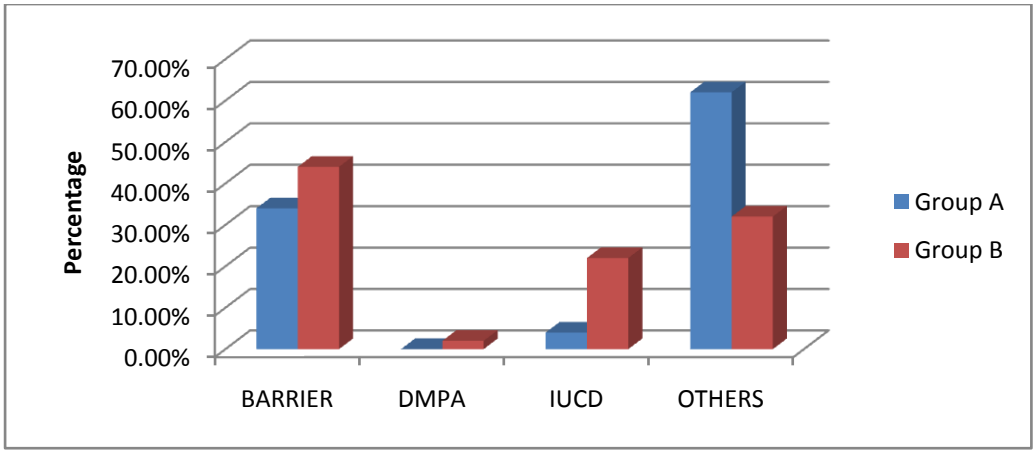

FIGURE 8 : Distribution of population according to use of contraception in vaginoscopy and hysteroscopy group.

9. MENOPAUSAL STATUS

TABLE 9: Distribution of population according to menopausal status

		Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
MENOPAUSAL STATUS	REPRODUCTIVE	25	50.0%	34	68.0%	59	4.609	0.100
	PREMENOPAUSAL	4	8.0%	5	10.0%	9		
	POSTMENOPAUSAL	21	42.0%	11	22.0%	32		
Total		50	100%	50	100%	100		

In our study, 25 (50%) vs 34 (68%) of patients were of reproductive age group in group A and group B respectively of the population, 4(8%) vs 5(10%) were premenopausal in group A and group B respectively of the population, 21(42%) vs 11(22%) were postmenopausal in group A and group B respectively With p-value of 0.100 which is statistically insignificant.

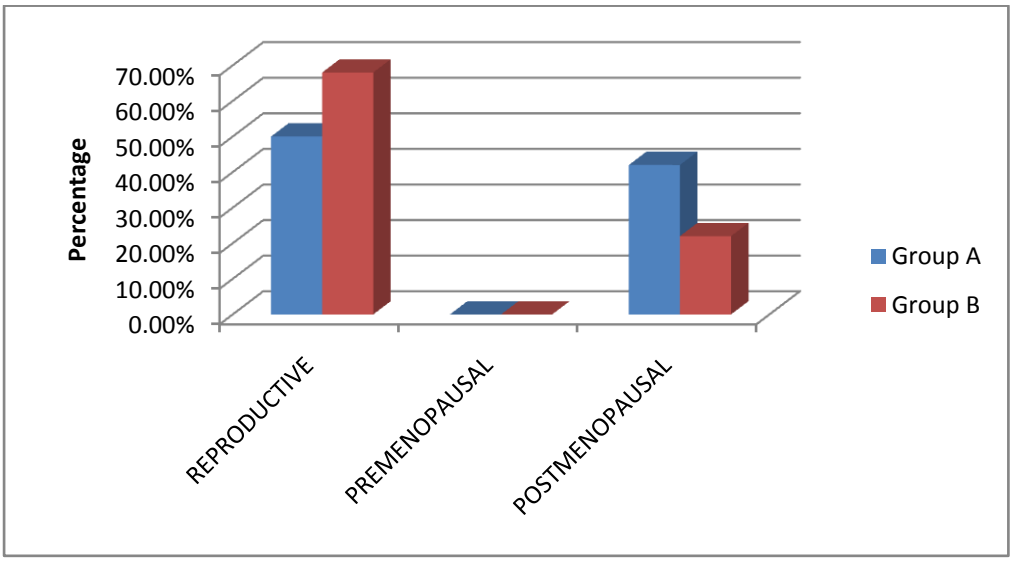

FIGURE 9: Distribution of population according to menopausal status in vaginoscopy and hysteroscopy group.

10. INDICATION OF PROCEDURE

TABLE 10: Distribution of population according to indication for vaginoscopy and hysteroscopy

		Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
INDICATION	AUB	18	36.0%	23	46.0%	41	10.23	0.15
	CHRONIC PELVIC PAIN	4	8.0%	6	12.0%	10		
	DPV	1	2.0%	0	0.0%	1		
	INFERTILITY	5	10.0%	10	20.0%	15		
	PERIMENOPAUSAL AUB	1	2.0%	0	0.0%	1		
	PMB	21	42.0%	11	22.0%	32		
Total		50	100%	50	100%	100		

In our study, 36% vs 46% had abnormal uterine bleeding (AUB) in group A and group B respectively of the population, in group A and group B 8% vs 12% had chronic pelvic pain respectively. In our study, 2% vs none had discharge per vaginum(DPV) in group A and group B respectively of the population , 10 vs 20% had infertility in group A and group B respectively. In our study, population in group A and group B 2% vs none presented with perimenopausal AUB respectively

In our study, 42% vs 22% presented with postmenopausal bleeding (PMB) in group A and group B respectively with p-value of 0.15 which is statistically insignificant.

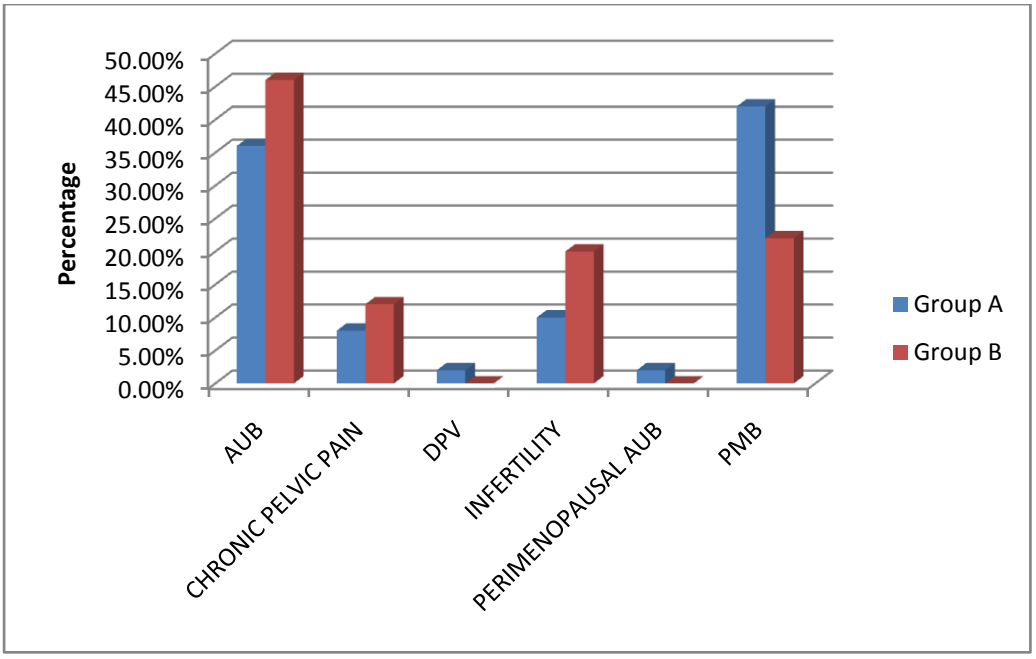

FIGURE 10: Distribution of population according to indication for vaginoscopy and hysteroscopy

11. MODE OF DELIVERY

TABLE 11: Distribution of population according to mode of delivery in both the groups

		Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
MODE OF DELIVERY	LSCS(CAESAREAN SECTION)	7	14.0%	18	36.0%	25	7.403	0.06
	VD (VAGINAL DELIVERY)	37	74.0%	27	54.0%	64		
	NONE	5	10.0%	5	10.0%	10		
	BOTH	1	2.0%	0	0.0%	1		
Total		50	100%	50	100.%	100		

Of the population, 14% vs 36% delivered by caesarean section in group A and group B respectively.

In our study, population who underwent vaginal delivery was 74% and 54% in group A and group B respectively

In our study, 10% vs 10% had no delivery (nulliparous) mode in group A and group B respectively

In our study population, 2% vs 0% had both mode of deliveries in group A and group B respectively.

Which is statistically insignificant (p-value 0.06)

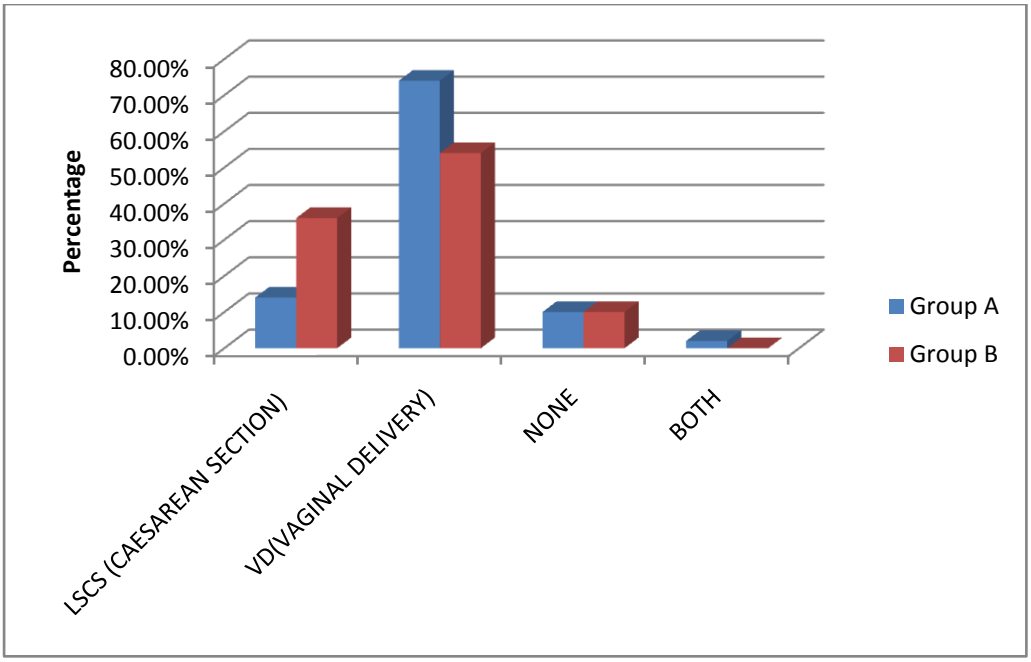

FIGURE 11: Distribution of population according to mode of delivery in both vaginoscopy and hysteroscopy group.

12. CERVICAL NEGOTIATION

TABLE 12: Comparison of negotiation of cervix in vaginoscopy and hysteroscopy

		Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
CERVIX NEGOTIATION	EASY	45	90.0%	43	86.0%	88	0.379	0.538
	DIFFICULT	5	10.0%	7	14.0%	12		
Total		50	100.0%	50	100.0%	100		

In our study, 45 (90%) vs 43(86%) had easy cervix negotiation in group A and group B respectively.

Of the population, 5(10%)vs 7(14%) had difficult cervix negotiation in group A and group B respectively

Which is statistically insignificant (p-value=0.538)

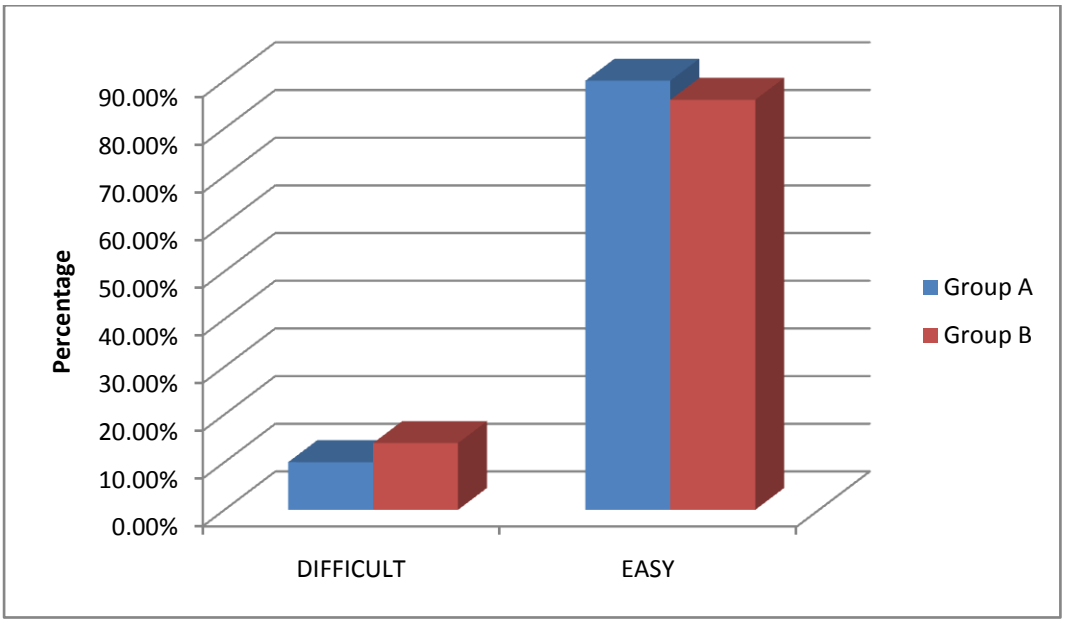

FIGURE 12: Comparison of negotiation of cervix in vaginoscopy and hysteroscopy

13. PAIN SCORE DURING INTRODUCTION OF HYSTEROSCOPE

TABLE 13: Assessment of pain score in vaginoscopy and hysteroscopy during introduction of hysteroscope pain was assessed by VAS score on a scale of 1-10

	Group A		Group B		Z	p-value
	Mean	SD	Mean	SD		
INTRODUCTION OF HYSTEROSCOPE	1.60	0.64	3.70	0.58	17.205	0.001

In our study, the mean pain score in group A was 1.60 with standard deviation of 0.64 and group B was 3.70 with standard deviation of 0.58 with p-value of 0.001

VAS AT INTRODUCTION OF HYSTEROSCOPE		Group A		Group B		Total	Chi-square value	p-value
	VAS score	No.of cases	%age	No. Of cases	%age			
	1-3.0	50	100.00%	18	36.00%	68	86.909	0.001
	4-7.0	0	0.00%	32	64.00%	32		
	8-10.0	0	0.00%	0	0.00%	0		
Total		50	100.00%	50	100.00%	100		

In our study, pain score was 1-3 in 50(100%) and 18 (36%) patients in group A and group B respectively.

In our population, in group A and group B pain score was 4-7 in none vs32 (64%) of patients respectively

In our study, pain score was8-10 in none of the patients in group A and group B respectively.

Pain score during introduction of hysteroscope was statistically significant in vaginoscopy and hysteroscopy group with p-value of 0.001

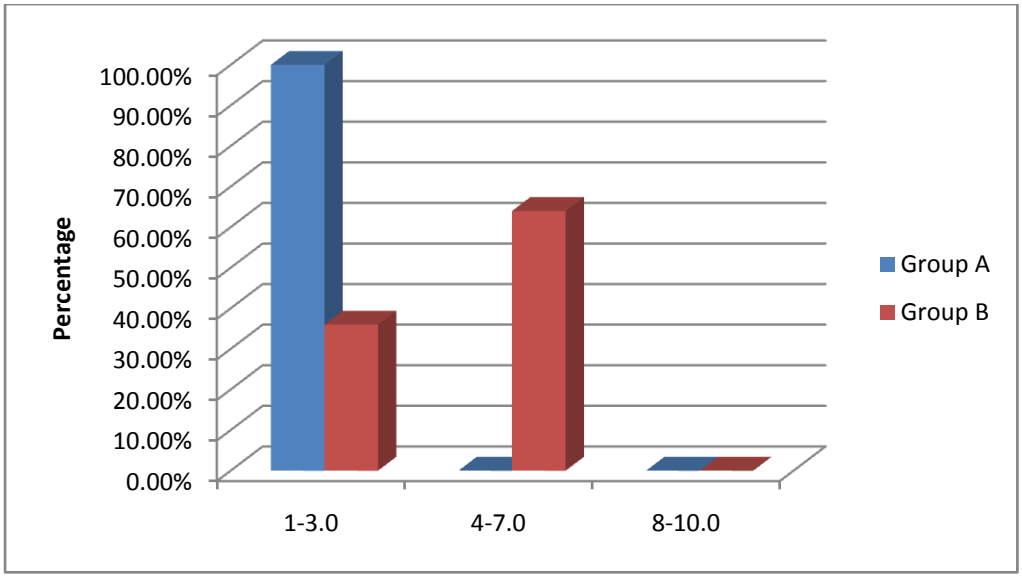

FIGURE 13: Assessment of pain score in vaginoscopy and hysteroscopy during introduction of hysteroscope

14. PAIN SCORE DURING PROCEDURE

TABLE 14: Assessment of pain by VAS score during the procedure in both the groups

	Group A		Group B		Z	p-value
	Mean	SD	Mean	SD		
DURING PROCEDURE (VAS)	2.20	1.37	3.70	1.39	5.437	0.001

In our study, the mean pain score during the procedure in vaginoscopy was 2.20 (maximum of 10) with standard deviation of 1.37 and mean VAS score in hysteroscopy was 3.70 with standard deviation of 1.39 with p-value of 0.001 which is statistically significant.

	VAS score	Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
VAS DURING PROCEDURE	1-3.0	44	88.0%	23	46.0%	67	19.946	0.001
	4-7.0	6	12.0%	27	54.0%	33		
	8-10.0	0	0.0%	0	0.0%	0		
Total		50	100.0%	50	100.0%	100		

In our study, 44 (88%)vs 23(46%) patients had pain score between 1-3 in group A and group B respectively.

In our population, 6(12%) vs 27(54%) patients had pain score between 4-7 in group A and group B respectively

None had pain score between 8 to 10

Which is statistically significant (p-value=0.001)

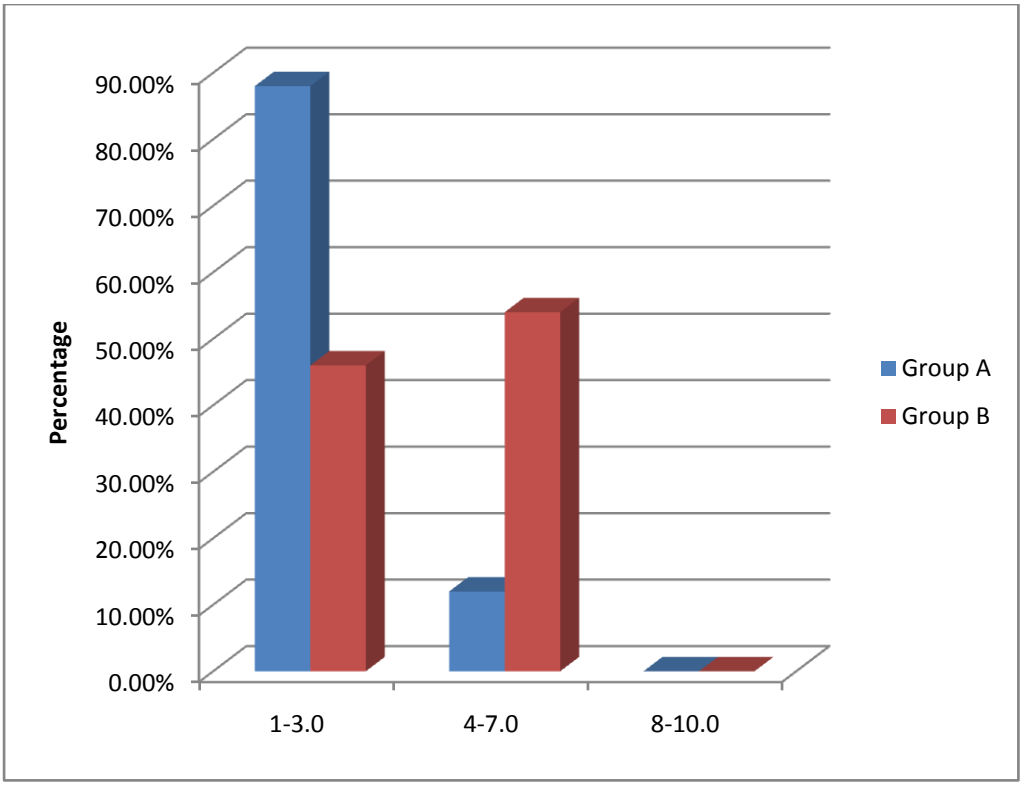

FIGURE 14: Assessment of pain by VAS score during the procedure in both vaginoscopy and hysteroscopy group.

15. PAIN SCORE AFTER PROCEDURE

TABLE 15: Assessment of pain score after the procedure

	Group A		Group B		Z	p-value
	Mean	SD	Mean	SD		
AFTER PROCEDURE (VAS)	1.16	0.55	2.20	0.61	8.999	0.001

In our study, the mean VAS score after the procedure in vaginoscopy was 1.16 (maximum of 10) with standard deviation of 0.55 and mean VAS score in hysteroscopy was 2.20 with standard deviation of 0.61 which is statistically significant with p- value of 0.001.

	VAS score	Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
VAS AFTER PROCEDURE	No	2	4.0%	0	0.0%	2	2.041	0.153
	1-3	48	96.0%	50	100.0%	98		
	4-7	0	0.0%	0	0.0%	0		
	8-10	0	0.0%	0	0.0%	0		
Total		50	100%	50	100.0%	100		

In our study, 2 (4%)vs none had VAS score 0 in group A and group B respectively

In our population, 48 (96%) vs50 (100%) patients had VAS score 1-3 in group A and group B respectively

In our study, VAS score 4-7 in none of the patient in group A and group B respectively

In our population, VAS score 8-10 in none of the patient in group A and group B respectively

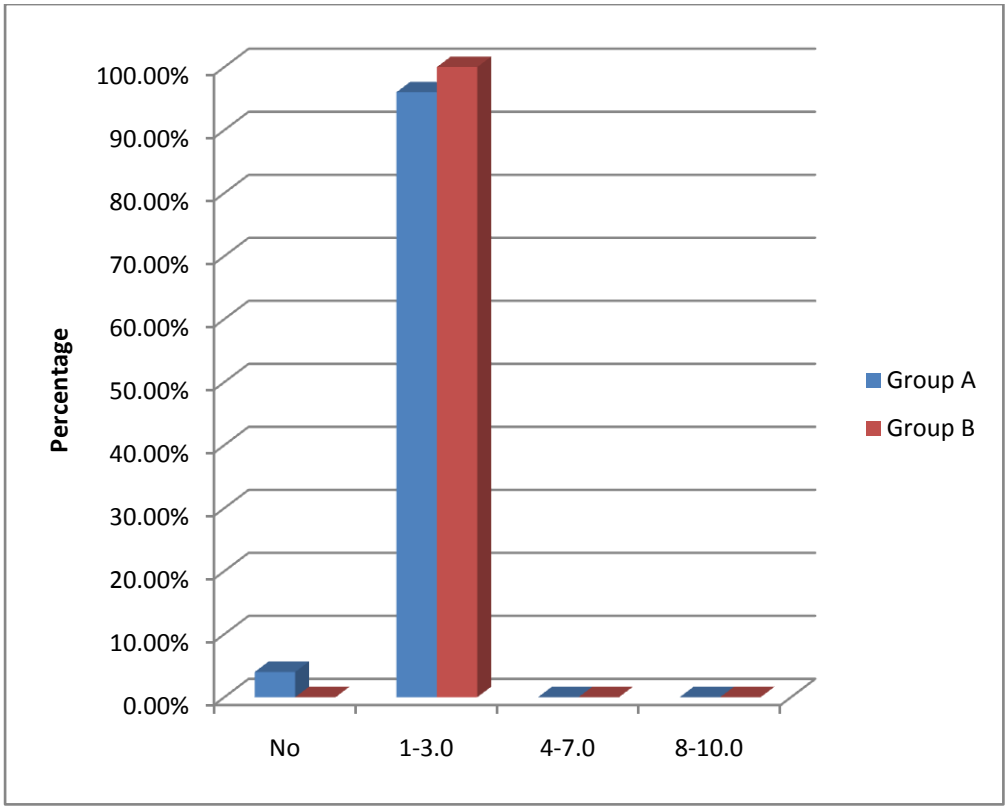

FIGURE 15: Assessment of pain score after the procedure in vaginoscopy and hysteroscopy group.

16. COMPARISON OF PAIN SCOREVS PARITY

TABLE 16: Distribution of pain score in population according to parity in vaginoscopy and hysteroscopy group

		Group A							Group B						
		DURING PROCEDURE (VAS)						Total	DURING PROCEDURE (VAS)						Total
		1-3.0		4-7.0		8-10.0			1-3.0		4-7.0		8-10.0		
		no. of cases	%age	no.of cases	%age	no.of cases	%age		no. of cases	%age	no. of cases	%age	no. of cases	% age	
PARITY	MULTIPAROUS	39	90.7%	4	9.3%	0	0.0%	43	21	46.7%	24	53.3%	0	0.0%	45
	NULLIPAROUS	5	71.4%	2	28.6%	0	0.0%	7	2	40.0%	3	60.0%	0	0.0%	5
Chi-square value		2.117							0.081						
p-value		0.146							0.777						

In our study , multiparous women in group A had VAS score of 1-3 in 39(90.7%), 4-7 in 4(9.3%), 8-10 in none(0%) patients Nulliparous women in group A had VAS score of 1-3 in 5 (71.4%), 4-7 in 2(28.6%) and 8-10 in none (0%) which is statistically insignificant(p-value 0.146).

In our study, multiparous women in group B had VAS score of 1-3 in 21(46.7%), 4-7 in 24(53.3%), 8-10 in none(0%) patients. Nulliparous women in group B had VAS score of 1-3 in 2(40.0%), 4-7 in 3(60.0%) and 8-10 in none (0%) which is statistically insignificant (p-value 0.777).

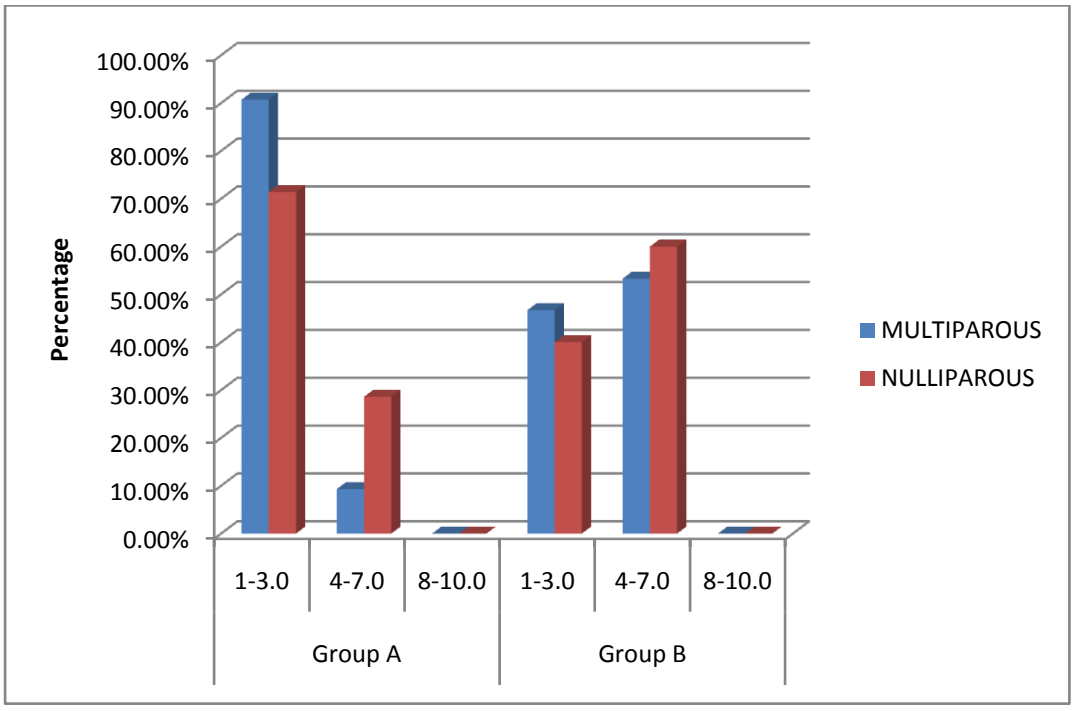

FIGURE 16: Distribution of pain score in population according to parity in vaginoscopy and hysteroscopy group

17. PAIN SCORE VS INDICATION

TABLE 17: Assessment of pain in vaginoscopy and hysteroscopy according to indication

		Group A							Group B						
		DURING PROCEDURE (VAS)						Total	DURING PROCEDURE (VAS)						Total
		1-3.0		4-7.0		8-10.0			1-3.0		4-7.0		8-10.0		
		No. Of cases	%age	No. Of cases	%age	No. Of cases	%age		No. Of cases	%age	No. Of cases	%age	No. of cases	%age	
INDICATION	ABNORMAL UTERINE BLEEDING	16	88.9%	2	11.1%	0	0.0%	18	9	39.1%	14	60.9%	0	0.0%	23
	CHRONIC PELVIC PAIN	3	75.0%	1	25.0%	0	0.0%	4	6	100.%	0	0.0%	0	0.0%	6
	DISCHARGE PER VAGINUM	1	100.%	0	0.0%	0	0.0%	1	0	0.0%	0	0.0%	0	0.0%	0
	INFERTILITY	3	60.0%	2	40.0%	0	0.0%	5	5	50.0%	5	50.0%	0	0.0%	10
	PERIMENOPAUSALAUB	1	100.%	0	0.0%	0	0.0%	1	0	0.0%	0	0.0%	0	0.0%	0
	POSTMENOPAUSAL BLEEDING	20	95.2%	1	4.8%	0	0.0%	21	3	27.3%	8	72.7%	0	0.0%	11
Chi-square value		5.680							9.098						
p-value		0.339							0.059						

In our study, group A, AUB patients had VAS score of 1-3 in 16 (88.9%),4-7 in 2 (11.1%), 8-10 in none (0%) . Chronic pelvic pain had VAS score of 1-3 in 3(75%), 4-7 in 1(25%), 8-10 in none (0%).Discharge per vaginum had VAS score of 1-3 in 1(100.0%),4-7 in none (0%), 8-10 in none (0%). Infertility had VAS score of 1-3 in 3 (60.0%), 4-7 in 2 (40.0%), 8-10 in none (0%).Peri menopausal AUB had VAS score of 1-3 in 1 (100.0%),4-7 in none (0%), 8-10 in none (0%). Postmenopausal bleeding had VAS score of 1-3 in 20 (88.0%), 4-7 in 6 (12%), 8-10 in none (0%) with p-value of 0.339 which is statistically insignificant.

In our study, group B patients having AUB had VAS score of 1-3 in 9(39.1%),4-7 in 14 (60.9%), 8-10 in none (0%). Chronic pelvic pain had VAS score of 1-3 in 6(100%), 4-7 in none (0%), 8-10 in none (0%).Discharge per vaginum had VAS score of 1-3 in none (0%),4-7 in none (0%), 8-10 in none (0%). Infertility had VAS score of 1-3 in 5(50.0%), 4-7 in 5(50.0%), 8-10 in none (0%). Perimenopausal AUB had VAS score of 1-3 in none (0%), 4-7 in none (0%), 8-10 in none (0%). Postmenopausal bleeding had VAS score of 1-3 in 3 (27.3%), 4-7 in 8 (72.7%), 8-10 in none (0%) with p-value of 0.059 which is statistically insignificant.

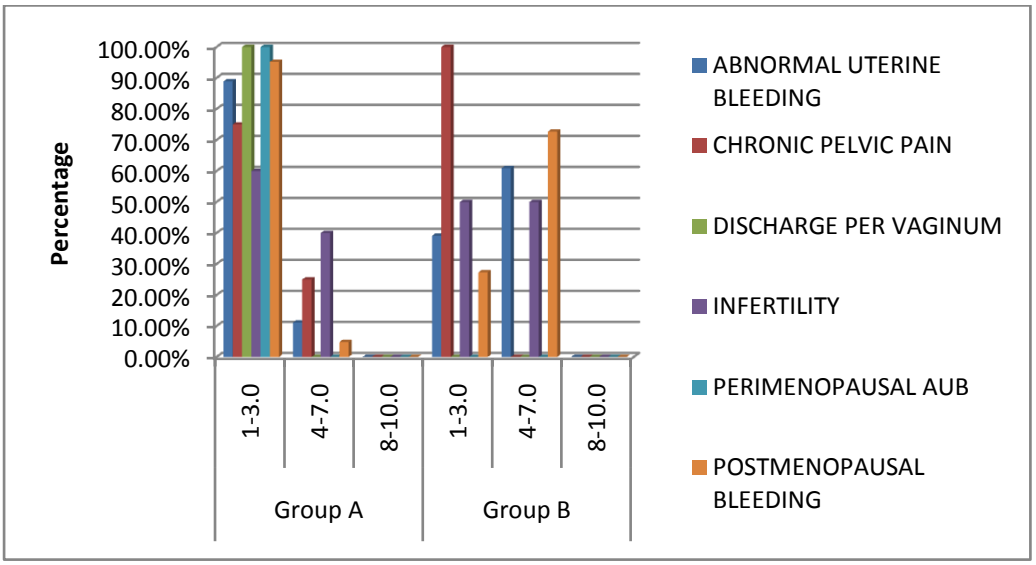

FIGURE 17: Assesment of pain in vaginoscopy and hysteroscopy according to indication

18. PAIN SCORE VS MODE OF DELIVERY

TABLE 18: Assessment of pain score according to mode of delivery in vaginoscopy and hysteroscopy group

		Group A							Group B						
		DURING PROCEDURE (VAS)						Total	DURING PROCEDURE (VAS)						Total
		1-3.0		4-7.0		8-10.0			1-3.0		4-7.0		8-10.0		
		No. of cases	%age	No. of cases	%age	No. of cases	%age		No. of cases	%age	No. of cases	%age	No. of cases	%age	
MODE OF DELIVERY	VD	35	94.6%	2	5.4%	0	0.0%	37	11	40.7%	16	59.3%	0	0.0%	27
	LSCS	4	57.1%	3	42.9%	0	0.0%	7	10	55.6%	8	44.4%	0	0.0%	18
	BOTH	1	100.%	0	0.0%	0	0.0%	1	0	0.0%	0	0.0%	0	0.0%	0
	NONE	4	80.0%	1	20.0%	0	0.0%	5	2	40.0%	3	60.0%	0	0.0%	5
Chi-square value		8.275							1.035						
p-value		0.041							0.596						

In our study, in group A VAS score was between 1-3 in 35 (94.6%) vs 4(57.1%) vs 1(100%) vs 4(80%) patients who had history of previous vaginal delivery vs LSCS vs who had history of both vaginal and LSCS vs who had none respectively. VAS score of 4-7 was seen in 2(5.4%) vs 3(42.9%) vs none(0%) vs 1(20%) patients who had history of previous vaginal delivery vs LSCS vs who had history of both vaginal and LSCS vs none with p-value of 0.041 which is statistically insignificant.

In our study,in group B VAS score was between 1-3 in 11 (40.7%) vs 10(55.6%) vs none(0%) vs 2(40%) patients who had history of previous vaginal delivery vs LSCS vs who had history of both vaginal and LSCS vs who had none respectively. VAS score of 4-7 was seen in 16(59.3%) vs 8(44.4%) vs none (0%) vs 3(60%) patients who had history of previous vaginal delivery vs LSCS vs who had history of both vaginal and LSCS vs none with p-value of 0.596 which is statistically insignificant.

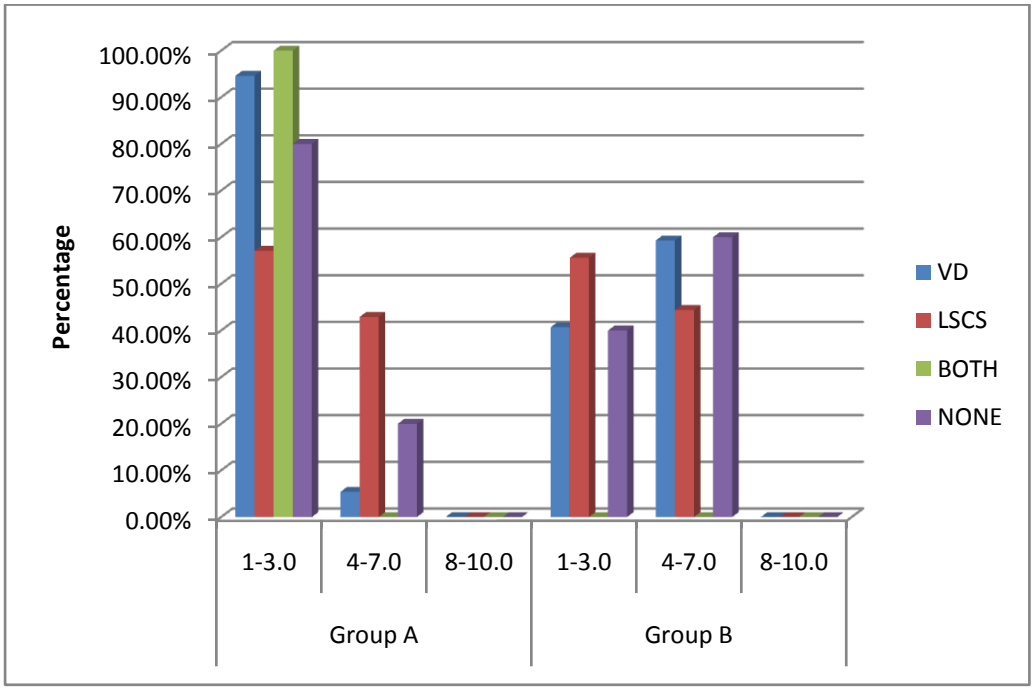

FIGURE 18: Assessment of pain score according to mode of delivery in vaginoscopy and hysteroscopy group

19. PAIN SCORE VS MENOPAUSAL STATUS

TABLE 19: Comparison of pain score in vaginoscopy and hysteroscopy group according to menopausal status

		Group A							Group B						
		DURING PROCEDURE (VAS)						Total	DURING PROCEDURE (VAS)						Total
		1-3.0		4-7.0		8-10.0			1-3.0		4-7.0		8-10.0		
		No. Of cases	%age	No. Of cases	%age	No. of cases	%age		No. of cases	%age	No. of cases	%age	No. of cases	%age	
MENOPAUSAL STATUS	REPRODUCTIVE	20	80.0%	5	20.0%	0	0.0%	25	16	47.1%	18	52.9%	0	0.0%	34
	PREMENOPAUSAL	4	100.0%	0	0.0%	0	0.0%	4	4	80.0%	1	20.0%	0	0.0%	5
	POSTMENOPAUSAL	20	95.2%%	1	4.8%	0	0.0%	21	3	27.3%	8	72.7%	0	0.0%	11
Chi-square value		3.102							3.895						
p-value		0.212							0.143						

In our study, reproductive age patients of group A had VAS score of 1-3 in 20(80%), 4-7 in 5(20%), 8-10 in none(0%) . Premenopausal women had VAS score of 1-3 in 4(100%), 4-7 in none (0%), 8-10 in none (0%). Postmenopausal women had VAS score of 1-3 in 20(95.2%), 4-7 in 1(4.8%), 8-10 in none (0%) with p- value of 0.212 which is statistically insignificant.

In our study, reproductive age patients of group B had VAS score of 1-3 in 16(47.1%), 4-7 in 18(52.9%), 8-10 in none(0%). Premenopausal women had VAS score of 1-3 in 4(80%), 4-7 in 1 (20%), 8-10 in none (0%). Postmenopausal women had VAS score of 1-3 in 3(27.3%), 4-7 in 8(72.7%), 8-10 in none (0%) with p- value of 0.143 which is statistically insignificant.

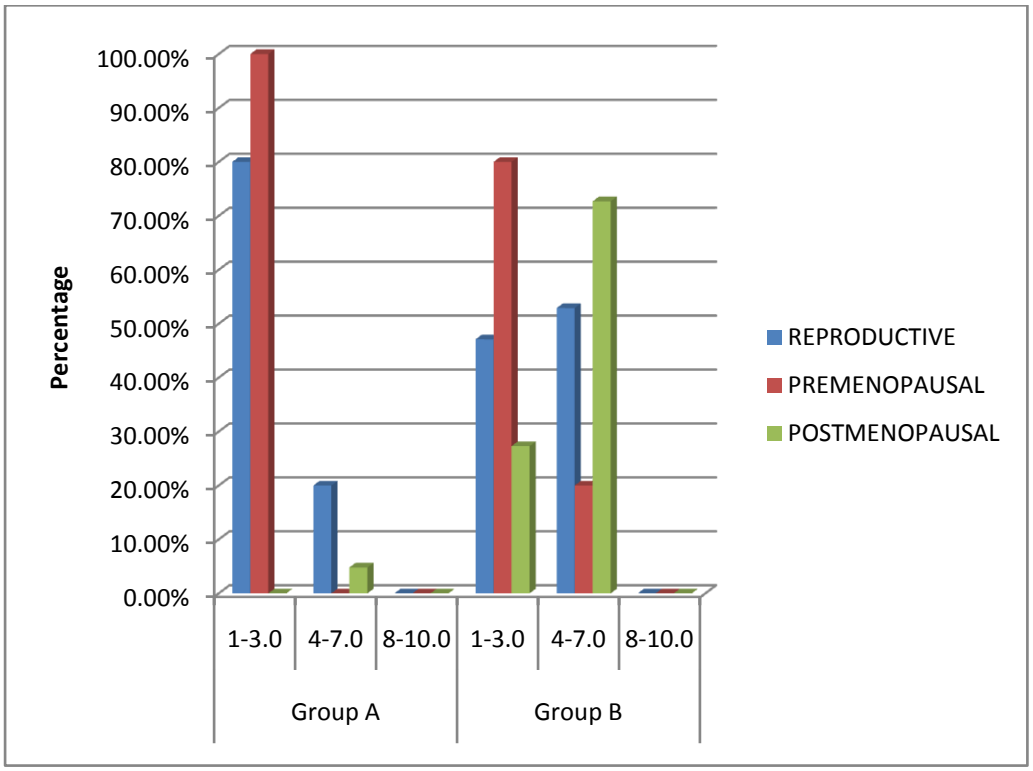

FIGURE 19: Comparison of pain score in vaginoscopy and hysteroscopy group according to menopausal status

20. CERVICAL NEGOTIATION ACCORDING TO PARITY

TABLE 20: Assessment of cervix negotiation according to parity

		Group A					Group B				
		CERVIX NEGOTIATION				Total	CERVIX NEGOTIATION				Total
		DIFFICULT		EASY			DIFFICULT		EASY		
		No. of cases	%age	No. of cases	%age		No. of cases	%age	No. of cases	%age	
PARITY	MULTIPAROUS	5	11.6%	38	88.4%	43	6	13.3%	39	86.7%	45
	NULLIPAROUS	0	0.0%	7	100.0%	7	1	20.0%	4	80.0%	5
Chi-square value		0.904					0.166				
p-value		0.342					0.684				

In our study, in group A multiparous women had difficult vs easy cervical negotiation in 5(11.6%) vs 38(88.4%). Nulliparous women had difficult vs easy cervical negotiation in none (0%) vs 7(100%) patients with p-value of 0.342 which was statistically insignificant.

In our study, in group B multiparous women had difficult vs easy cervical negotiation in 6(13.3%) vs 39(86.7%). Nulliparous women had difficult vs easy cervical negotiation in 1 (20%) vs 4(80%) which was statistically insignificant (p-value 0.684).

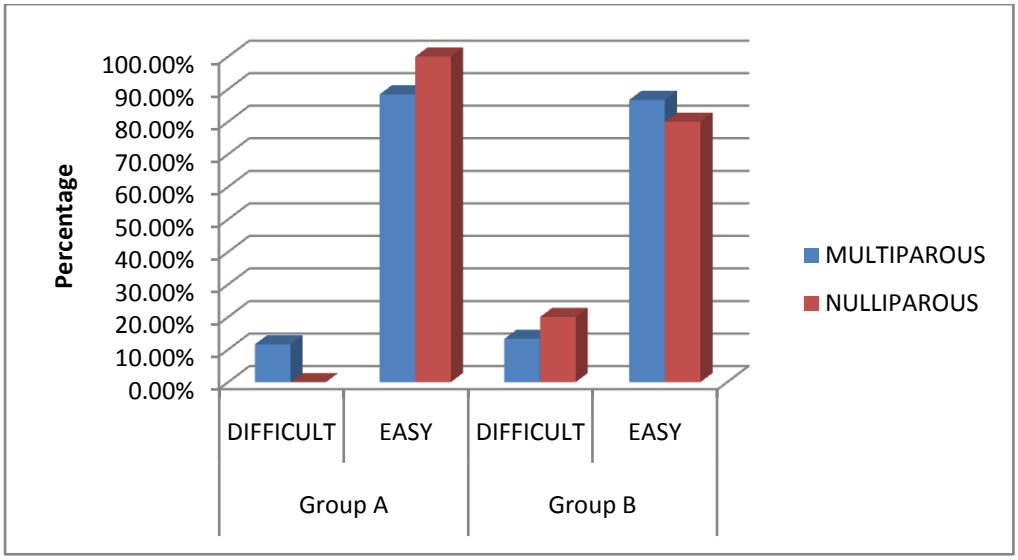

FIGURE 20: Assessment of cervix negotiation according to parity in vaginoscopy and hysteroscopy group.

21. CERVICAL NEGOTIATION ACCORDING TO INDICATION

TABLE 21: Assessment of cervical negotiation according to indication

		Group A					Group B				
		CERVIX NEGOTIATION				Total	CERVIX NEGOTIATION				Total
		DIFFICULT		EASY			DIFFICULT		EASY		
		No. Of cases	%age	No. Of cases	%age		No. Of cases	%age	No. Of cases	%age	
INDICATION	ABNORMAL UTERINE BLEEDING	1	5.6%	17	94.4%	18	2	8.7%	21	91.3%	23
	CHRONIC PELVIC PAIN	0	0.0%	4	100.0%	4	0	0.0%	6	100.0%	6
	DISCHARGE PER VAGINUM	0	0.0%	1	100.0%	1	0	0.0%	0	0.0%	0
	INFERTILITY	0	0.0%	5	100.0%	5	2	20.0%	8	80.0%	10
	PERIMENOPAUSALAUB	0	0.0%	1	100.0%	1	0	0.0%	0	0.0%	0
	POSTMENOPAUSAL BLEEDING	4	19.0%	17	81.0%	21	3	27.3%	8	72.7%	11
Chi-square value		3.527					3.561				
p-value		0.619					0.469				

In our study, in group A difficult cervical negotiation was in 1(5.6%) patients with AUB (abnormal uterine bleeding)vs none (0%) with chronic pelvic pain, discharge per vaginum, infertility, perimenopausal AUB and 4(19%) patients with postmenopausal bleeding. Easy cervical negotiation was in 17(94.4%) patients with AUB (abnormal uterine bleeding) vs 4(100%) patients with chronic pelvic pain, 1(100%) with discharge per vaginum, 5(100%) with infertility and

1(100%) with perimenopausal AUBand 17(81%) patients with postmenopausal bleeding with p-value of 0.619 which is statistically insignificant.

In our study, in group B difficult cervical negotiation was in 2(8.7%) patients with AUB (abnormal uterine bleeding) vs none (0%) with chronic pelvic pain, discharge per vaginum, perimenopausal AUB vs 2 (20%) with infertility vs 3(27.3%) patients with postmenopausal bleeding. Easy cervical negotiation was in 21(91.3%) patients with AUB (abnormal uterine bleeding) vs 6(100%) patients with chronic pelvic pain vs none(0%) with discharge per vaginum, perimenopausal AUB vs 8(80%) with infertility vs 8(72.7%) patients with postmenopausal bleeding with p-value of 0.469 which is statistically insignificant.

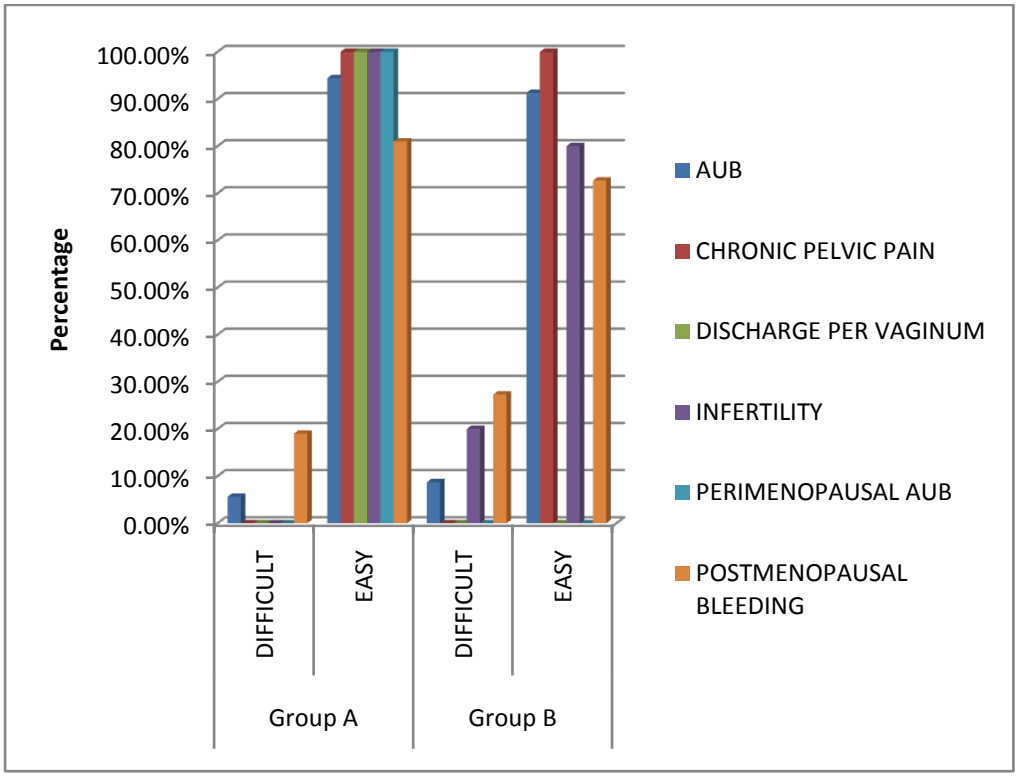

FIGURE 21: Assessment of cervical negotiation according to indication in vaginoscopy and hysteroscopy.

22. CERVICAL NEGOTIATION ACCORDING TO MODE OF DELIVERY

TABLE 22: Assessment of cervix negotiation according to mode of delivery

		Group A					Group B				
		CERVIX NEGOTIATION				Total	CERVIX NEGOTIATION				Total
		DIFFICULT		EASY			DIFFICULT		EASY		
		No. Of cases	%age	No. Of cases	%age		No. Of cases	%age	No. Of cases	%age	
MODE OF DELIVERY	VD	4	10.8 %	33	89.2%	37	4	14.8%	23	85.2 %	27
	LSCS	1	14.3 %	6	85.7%	7	2	11.1%	16	88.9 %	18
	BOTH	0	0.0%	1	100.0 %	1	0	00.0%	0	00.0 %	0
	NONE	0	0.0%	5	100.0 %	5	1	20.0%	4	80.0 %	5
Chi-square value		0.837					0.289				
p-value		0.841					0.865				

In our study, in group A cervical negotiation was difficult in 4(10.8%) of vaginal delivery, 1(14.3%) of LSCS and none in others. Easy cervical negotiation was in 33 of previous vaginal delivery, 6 of LSCS and 5(100%) patients who had no delivery (nulliparous), and 1 of patients who had both vaginal and LSCS with p-value of 0.841 which is statistically insignificant.

In our study, in group B cervical negotiation was difficult in 4 of vaginal delivery, 2 of LSCS, 1 of none. Easy cervical negotiation was in 23 of previous vaginal delivery, 16 of LSCS and 0 patients who were nulliparous, and 4 of patients who had both vaginal and LSCS with p-value of 0.865 which is statistically insignificant.

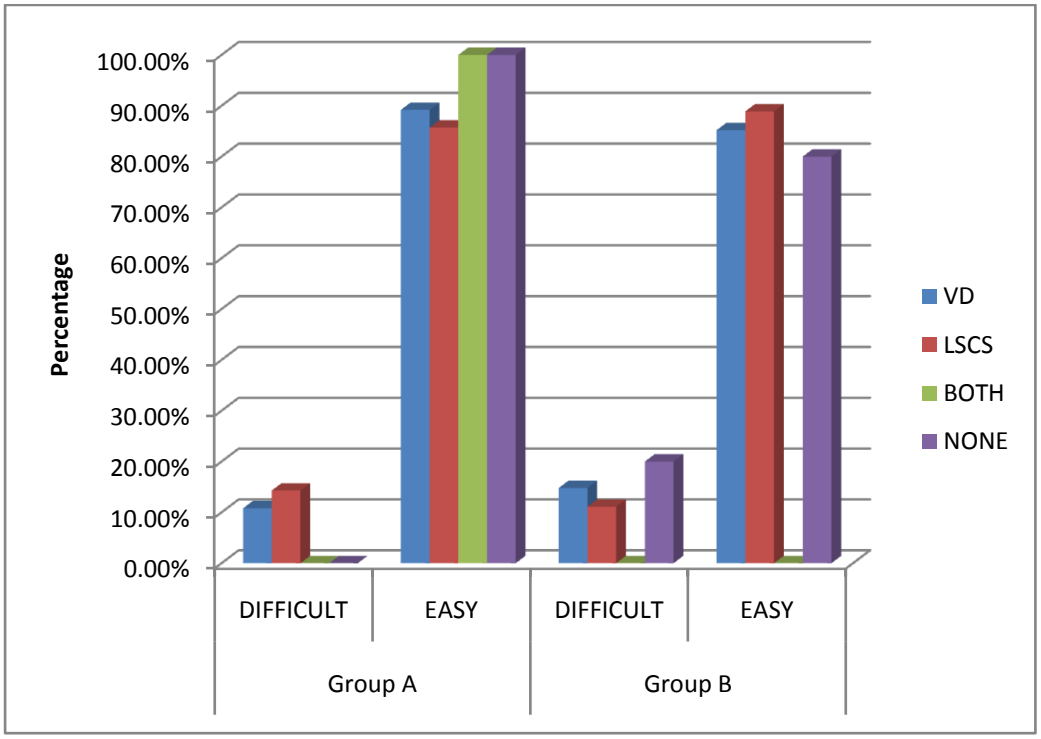

FIGURE 22: Assessment of cervix negotiation according to mode of delivery in vaginoscopy and hysteroscopy group.

23. CERVICAL NEGOTIATION ACCORDING TO MENOPAUSAL STATUS

TABLE 23: Assessment of cervical negotiation according to menopausal status

		Group A					Group B				
		CERVIX NEGOTIATION				Total	CERVIX NEGOTIATION				Total
		DIFFICULT		EASY			DIFFICULT		EASY		
		No. Of cases	%age	No. Of cases	%age		No. Of cases	%age	No. Of cases	%age	
MENOPAUSAL STATUS	REPRODUCTIVE	1	4.0%	24	96.0%	25	4	11.8%	30	88.2%	34
	PREMENOPAUSAL	0	0.0%	4	100.0%	4	0	0.0%	5	100.0%	5
	POSTMENOPAUSAL	4	19.0%	17	81.0%	21	3	27.3%	8	72.7%	11
Chi-square value		3.354					2.565				
p-value		0.187					0.277				

In our study reproductive women in group A had cervical negotiation difficult vs easy in 1 (4%) vs 24(96%). Premenopausal women had difficult vs easy in none (0%) vs 4(100%). Postmenopausal women had difficult vs easy in 4(19%) vs 17(81%) with p-value of 0.187 which was statistically insignificant.

In our study, reproductive women in group B had cervical negotiation difficult vs easy in 4 (11.8%) vs 30(88.2%). Premenopausal women had difficult vs easy in none (0%) vs 5(100%). Postmenopausal women had difficult vs easy in 3(27.3%) vs 8(72.7%) with p-value of 0.277 which was statistically insignificant.

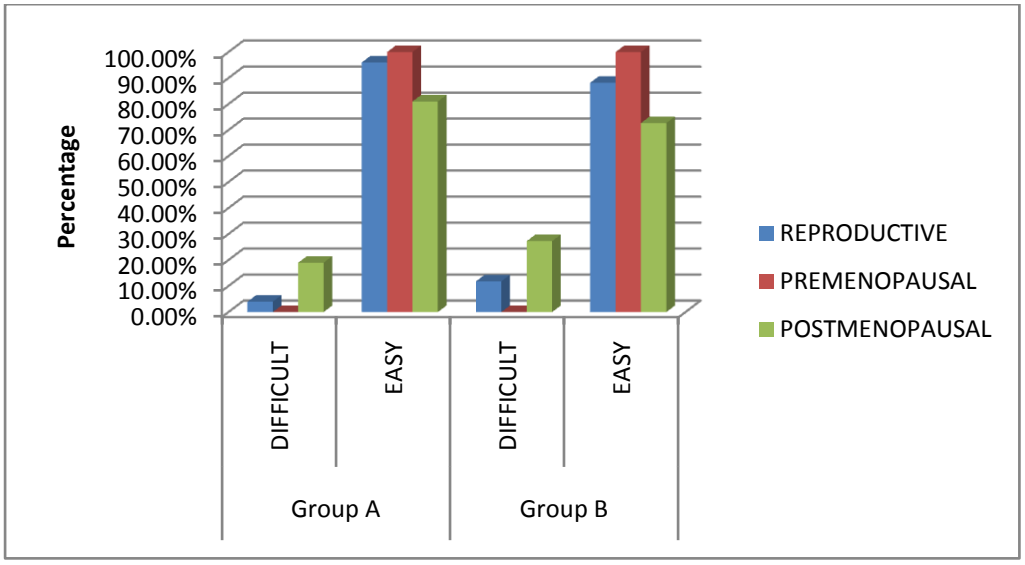

FIGURE 23: Assessment of cervical negotiation according to menopausal status

24. COMPLICATIONS

TABLE 24: Comparison of complication in vaginoscopy and hysteroscopy group

		Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
COMPLICATIONS	Bleeding	1	2.0%	3	6.0%	4	1.042	0.307
	Infection	0	0.0%	0	0.0%	0		
	Perforation	0	0.0%	0	0.0%	0		
	Embolism	0	0.0%	0	0.0%	0		
	Fluid overload	0	0.0%	0	0.0%	0		

In our study, bleeding was present in 2% vs 6% patients in group A and group B respectively and none other complication(infection, perforation, embolism, fluid overload) was not seen in group A and group B respectively which was statistically insignificant (p-value- 0.307).

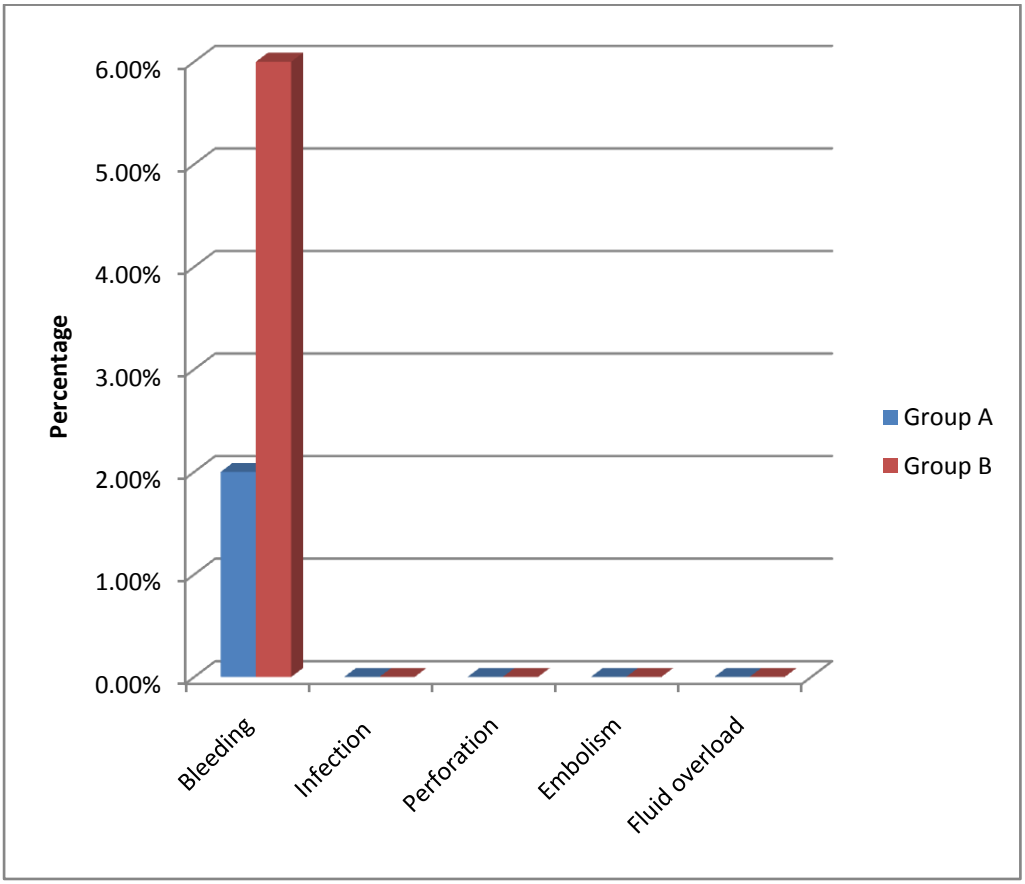

FIGURE 24: Comparison of complication in vaginoscopy and hysteroscopy group

25. ANESTHESIA

TABLE 25: Assessment of anesthesia required in vaginoscopy and hysteroscopy

		Group A		Group B		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
ANESTHESIA	LA	13	26.0%	18	36.0%	31	30.365	0.001
	REGIONAL	2	4.0%	6	12.0%	8		
	GA	4	8.0%	20	40.0%	24		
	NONE	31	62.0%	6	12.0%	37		
Total		50	100.0%	50	100.0%	100		

Local anesthesia (LA) was required in 13(26%) vs 18(36%) patients in group A and group B respectively.

In group A and group B, regional anesthesia was required in 2(4%) vs 6 (12%) of cases.

4 (8%) vs 20(40%) required general anesthesia in group A and group B respectively

In our study, no analgesia was required in 31(62%) vs 6(12%) cases in group A and group B respectively which was statistically significant with p-value of 0.001.

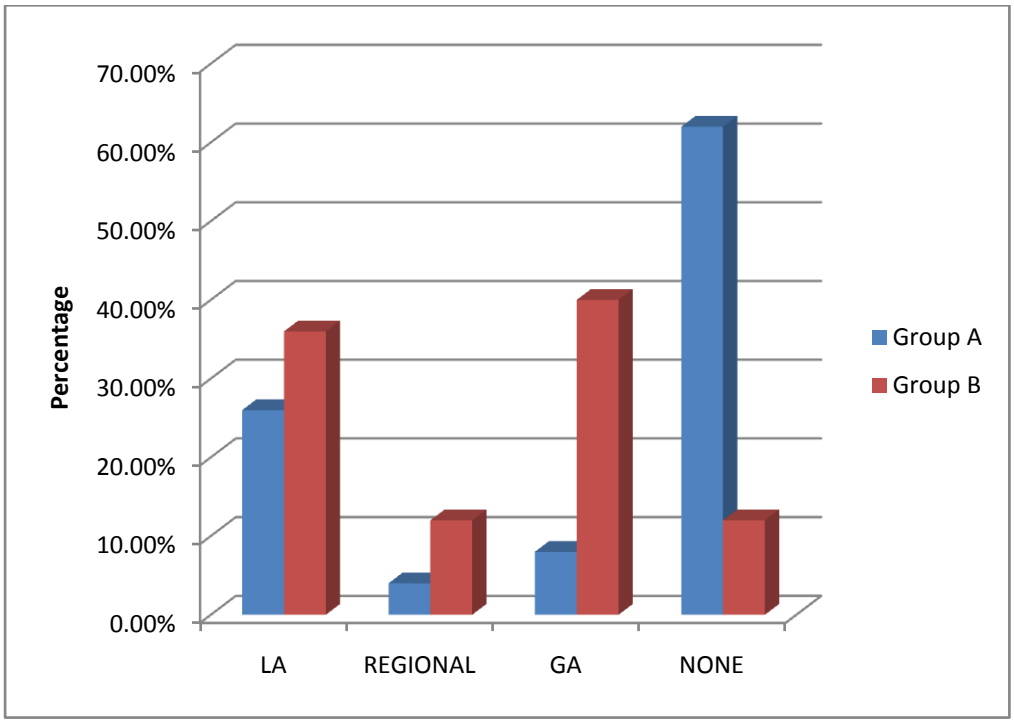

FIGURE 25: Assessment of anesthesia required in vaginoscopy and hysteroscopy

26. DURATION OF PROCEDURE

TABLE 26: Comparison of time duration required for vaginoscopy and hysteroscopy

	Group A		Group B		Z	p-value
	Mean	SD	Mean	SD		
DURATION	9.18	4.69	14.22	4.55	5.449	0.001

In our study, the mean duration in group A was 9.18 minutes with standard deviation of 4.69 and in group B the mean duration was 14.22 minutes with standard deviation of 4.55 with p-value of 0.001 which was statistically significant

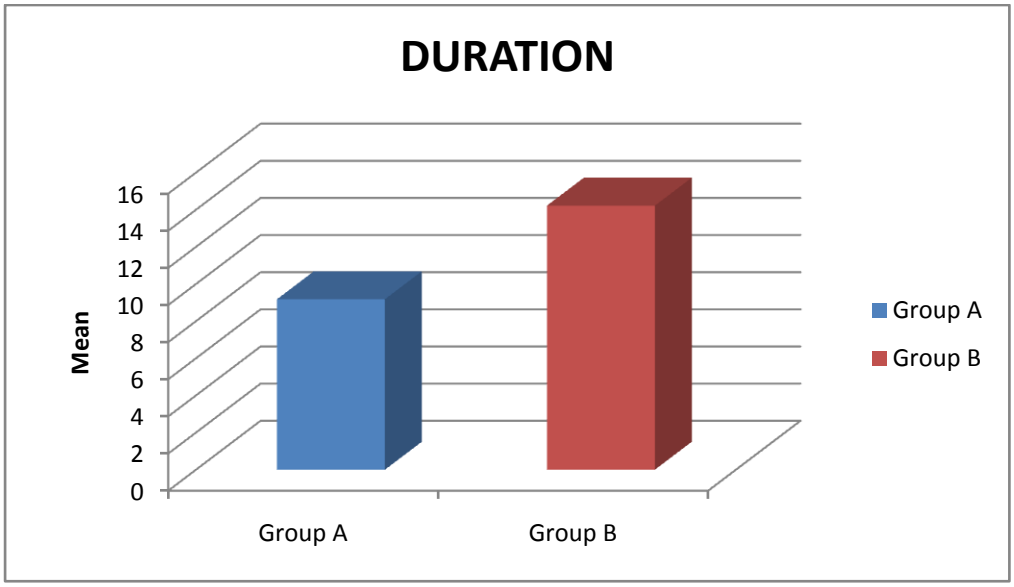

FIGURE 26: Comparison of time duration required for vaginoscopy and hysteroscopy

27. SATISFACTION

TABLE 27: Comparison of level of satisfaction of patient in vaginoscopy and hysteroscopy Questionnaire was given to patients before the procedure and patients were asked to fill that after the procedure. Questionnaire had maximum points of 10.

	Group A		Group B		Z	p-value
	Mean	SD	Mean	SD		
SATISFACTION	8.70	0.65	8.62	0.67	-0.609	0.544

In our study, the mean satisfaction in group A was 8.70 (maximum 10) with standard deviation of 0.65 and in group B the mean satisfaction was 8.62 with standard deviation of 0.67 with p-value of 0.544 which was statistically insignificant.

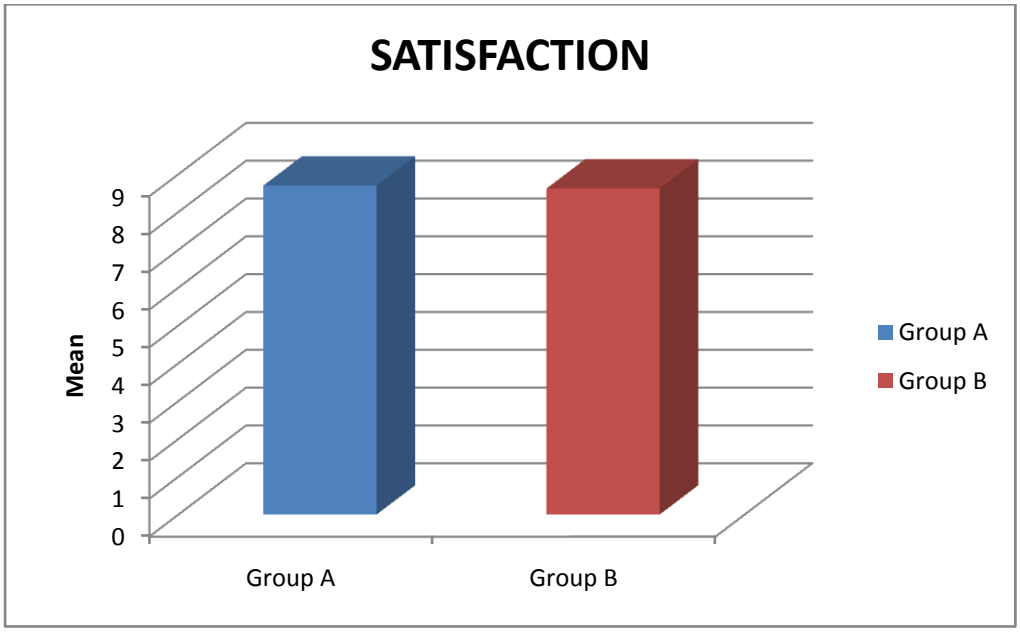

FIGURE 27: Comparison of level of satisfaction of patient in vaginoscopy and hysteroscopy

DISCUSSION

This study was conducted to compare the feasibility, safety and acceptability of vaginoscopic hysteroscopy and standard hysteroscopy.

DEMOGRAPHY:

The mean age and BMI of the study population was 45.77 years and 27.04kg/m^2 respectively. A majority of population was multiparous and belonged to rural areas in both vaginoscopy and hysteroscopy groups. This reflects that endometrial pathology occurs more in premenopausal and obese patients. It could also be due to geographical variations.[1]

Liyun Liao et al. [32] that stated that there were no statistically significant differences in the demography of the vaginoscopy and hysteroscopy group, such as mean age, duration of surgery, body mass index, and mode of delivery, compared with the hysteroscopy group ($P > 0.05$).

Tien et al. 2021[27] revealed no statistical differences between the vaginoscopy and standard hysteroscopy groups as regard to menopausal status and BMI.

In our population, a majority were undergraduates and belonged to lower middle class. Majority of patients were using barrier method of contraception and belonged to reproductive age group. This can be attributed to the fact that our hospital is a tertiary care centre where patients of all socio economic status report for check up.

The most common indication for hysteroscopy and vaginoscopy was AUB followed by postmenopausal bleeding. Others were chronic pelvic pain, infertility, and discharge per vaginum.

Hysteroscopy has an important role in women with postmenopausal bleeding (PMB) and increased endometrial thickness, since identifying different endometrial pathologies under direct vision is achieved in real time. In addition, hysteroscopy offers biopsies or excision of endometrial lesions like polyps and myomas under direct vision, allowing accurate diagnosis.[34]

Cagri Gulumser et al. [35] found that the most common indications for referrals of hysteroscopy and vaginoscopy were postmenopausal

bleeding (441, 39.8%), menorrhagia (285, 25.7%) and irregular menstruation/intermenstrual bleeding (161, 14.5%)

The main hysteroscopic indication in our sample was AUB, but as expected the respective hysteroscopic findings were dependent on reproductive/menopausal status of the patients.[49]For women of reproductive age sub-fertility issues were a common hysteroscopic indication, while in menopausal women, increased endometrial thickness after sonographic evaluation indicated the need for further hysteroscopic assessment. Our findings are in keeping with the existing international scientific evidence. [49,50]

The Largest Retrospective Study in Greece to Date June 2023 [34] stated that the main hysteroscopic indication was AUB. For women of reproductive age subfertility issues were a common hysteroscopic indication, while in menopausal women, increased endometrial thickness after sonographic evaluation indicated the need for further hysteroscopic assessment.

A study in year 2013 by Lamiese Ismail et al **[36]** studied that the presenting complaints of patients included was post-menopausal bleeding (77%) and abnormal perimenopausal bleeding (8%).

In our study, a majority of patients had vaginal mode of delivery in both the groups. Cervical negotiation was easy in 90% cases of vaginoscopy and 86% cases of hysteroscopy group. This can be explained as a cervical os was patulous due to vaginal delivery and choosing the appropritate instrumentation. Negotiation was difficult in few cases of cervical stenosis due to scared uterus, nulliparity and postmenopausal women.

Tien et al.[27] May 2021 reported that patients with premenopausal status and having no previous vaginal deliveries were associated with a higher success rate in cervical negotiation in vaginoscopy, but not in standard hysteroscopy (92% vs 86%, p = 0.02 in premenopausal status; 89% vs 81%, p = 0.01 in no previous vaginal deliveries). In our study, the percentages of premenopausal women and of patients with previous vaginal births were not significantly different between the two groups.

Salvatore Giovanni Vitale et al [37] in 2023 stated that choosing the adequate instrumentation is mandatory in case of cervical stenosis. Smaller diameter hysteroscopies are the best to overcome cervical stenosis, offering an optimal view with minimal discomfort for the patient and concluding that cervical negotiation is better with vaginoscopy than with standard hysteroscopy.

Patients were asked to assess the pain during the introduction of hysteroscope, during the procedure and after the procedure. The level of pain was rated according to a 0-10 visual analogue scale (VAS: 0 = no pain, 1-3 mild pain, 4-7 moderate pain, 8-10 severe pain).[38]

In our study, the VAS score during the introduction of hysteroscope was lower in vaginoscopy group as compared to hysteroscopy group. VAS score was 1-3 in majority (100%) of vaginoscopy group patients whereas it was between 4-7 in majority (64%) of hysteroscopy group patients during the introduction of the hysteroscope .

The VAS score was evaluated both during and after the procedure. The mean VAS score during the procedure was 2.2(maximum of 10) with standard deviation of 1.37 in vaginoscopy group vs 3.70 with standard deviation of 1.39 in hysteroscopy group. The VAS score was evaluated 30 minutes after the procedure. The mean VAS score after the procedure in vaginoscopy group was 1.16 with standard deviation of 0.55 and in hysteroscopy group was 2.20 with standard deviation of 0.61. Garbin et al.[39] reported that the VAS scores (maximum of 10) was lower for vaginoscopy than for standard hysteroscopy (0.5 vs 2; p <0.001).Most of the previous studies[42] reported less pain in vaginoscopic group than in standard hysteroscopic group, which was comparable to our findings which shows lower pain scores in vaginoscopy than in hysteroscopy with P value of <0.001 which is highly significant because it was a no touch technique and no instruments were used. No pain is perceived at the time of cervical grasping.

By not using the speculum and the tenaculum before vaginoscopic hysteroscopy examination, and using small calibre endoscopes we

eliminated discomfort not related to the technique itself, but also the number of instruments necessary for the procedure. Even when the speculum is of the appropriate size, is lubricated, and inserted slowly, it always causes some discomfort, especially in overanxious women. The tenaculum is used to facilitate and speed up insertion of the hysteroscope, producing stabilizing countertraction. Correct and gradual insertion of the scope, taking heed of the anatomy of the uterus, can yield the same technical results without the discomfort produced by external factors. Grasping the cervix with the tenaculum is always painful and traumatic.[40]

In year 2021 Gupta N, Jahan U *et al*.[9] found a significant difference in the pain score.A maximum number of patients (68%) perceived the pain of grade 4 during the grasping of the cervix with vulselum during the traditional hysteroscopy. In vaginoscopic hysteroscopy as there is direct introduction of hysteroscope, pain is perceived only in two steps.

A study by Association of Obstetric and Gynaecology of New Delhi in 2021 concluded that the vaginoscopy group had significantly lesser pain scores median pain score of 3 versus 5 in the standard hysteroscopy group.[42]

Cochrane Database Syst Rev. 2017[30] Oct stated that there was no clear evidence of a difference between the groups in mean pain scores after > 30 minutes.

The mean time for vaginoscopy in our study was 9.18 minutes with standard deviation of 4.69 vs 14.22 minutes with a standard deviation of 4.55 for hysteroscopy group.In our study the median time to complete the examination was shorter in vaginoscopy than in hysteroscopy with a P value of <0.001 which is highly significant.

Tien CT et al. In 2021 also reported that examination time in vaginoscopy is shorter than in hysteroscopy[31]. Smith et al in 2019 also reported a shorter examination time in vaginoscopy than in hysteroscopy [25]

Gaurav N et al. 2021[9] also reported that in the diagnostic study during vaginoscopic procedure, 32 patients (76.19%) had completed their

procedure in between 3 and 5 minutes. In traditional hysteroscopy, procedure time is 5 to 7 minutes in 34 patients (77.27%).

A study by Association of Obstetric and Gynaecology of New Delhi in 2021 concluded that the vaginoscopy group had significantly shorter procedural timings 117.62±8.81 seconds versus 203.87±19.23 seconds in hysteroscopy group.[42]

However, Garbin et al [39] indicated no significant differences between the two groups (240 vs 240 seconds, $p>0.05$).

This is attributable to less requirement of instrumentation and less pain in vaginoscopy than hysteroscopy group which lowers the amount of duration required to complete vaginoscopy.

No major complications were recorded during the procedure performed in any of groups.[1] Percentage of complications seen in both the groups were rare. Complications of this standard procedure is relatively rare.

There is no significant difference in the number of failed procedures between the vaginoscopic and traditional hysteroscopy.

Gupta N *et al*. [41] found no major side effects during the procedure performed in any of the groups.

In our study, no anesthesia was required in majority of cases of vaginoscopy whereas in hysteroscopy group either local anesthesia or short general anesthesia was required. A systematic review & meta-analysis by Pratibha M et al. [26] also reported that in vaginoscopy where there is less use of instrumentation, the need of anesthesia is less compared to hysteroscopy group. Less requirement of anesthesia in vaginoscopy group is attributable to the less requirement of instruments and lower calibre endoscopes as comparable to hysteroscopy thus reducing pain and the need of anesthesia.

In our study, there was 100% feasibility in both vaginoscopy and hysteroscopy group. The findings that vaginoscopy is associated with significantly reduced procedural pain and comparable feasibility, compared with traditional speculum-assisted and cervical instrumentation approaches to standard hysteroscopy, have clinical implications for clinical practice [39]

Ma T et al. [43] in year 2017 concluded that patient acceptability improved after the transition from standard hysteroscopy to vaginoscopic technique “no touch” technique.

A systematic review and meta-analysis 2024 [41] concluded that the procedure failure rates was similar in both approaches (relative risk, 0.97 [95% CI, 0.71-1.32], I^2 = 43%). In the hands of the expertise, both vaginoscopy and standard hysteroscopy is 100% feasible without complications.

In our study, the mean satisfaction in group a patients was 8.70 vs 8.62 in group B patients with p-value of 0.544 which is staitistically insignificant showing that there was very mild difference in satisfaction level of both the techniques. Sharma S Roy et al.[44] Concluded that procedures utilizing smaller calibre hysteroscopes were well tolerated by vaginoscopy technique and therefore, show better satisfaction reducing during and post procedural pain.

Liao L et al.[29] found that the difference in patient satisfaction between the two groups was significant, 91% in the vaginoscopy group was higher than 75% in the hysteroscopy group, and the comparison was statistically significant ($P < 0.05$).

Darwish et al.[45] in year 2019 found that the patient satisfaction was more significant with vaginoscopy compared to hysteroscopy due to less use of anesthesia, less duration and comparatively less painful.

De Silva et al.[46] in year 2020 found statistical analyses revealing no significant difference in levels of patient satisfaction and/or acceptability between either vaginoscopy or the standard hysteroscopy approach. Vaginoscopic hysteroscopy stands out its safety, ease of use, diagnostic accuracy, and high patient tolerability. Future studies should focus not only on the efficacy of vaginoscopic hysteroscopy in improving outcomes but also on its cost-effectiveness and impact on patient care pathways.[47]

SUMMARY AND CONCLUSION

In the prospective study conducted in the department of Obstetrics and Gynaecology at Dayanand Medical College and Hospital , Ludhiana . A total of 100 patients of age 21- 75 years were recruited to compare the vaginoscopic approach with the standard hysteroscopy.

- The mean age of our study population was 45.77 years. The mean age of the vaginoscopy group was 47.66 years vs 43.8 years in hysteroscopy group . In our study no correlation was found with age.
- The mean BMI in our study population was 27.04 kg/m^2. The mean BMI in vaginoscopy group was 26.29 kg/m^2 vs 27.28 kg/m^2 in hysteroscopy group. In our study no correlation was found with BMI.
- A majority of women in both the groups were multiparous and belonged to rural areas.
- A majority of women in our study population were undergraduates and belonged to reproductive age group.
- The most common indication was abnormal uterine bleeding of vaginoscopy and standard hysteroscopy group.
- In both the groups the majority of women had LSCS as a mode of delivery but this was not statistically significant.
- In both the groups cervical negotiation was easy in majority of the women with difficulty in very few of the patients.
- The mean pain score in our study population during the introduction of hysteroscope, in group A was 1.60 vs 3.70 in group B which is statistically significant with
- p-value of 0.001. this implies that the introduction of hysteroscope is less painful in vaginoscopy technique compared to standard hysteroscopy technique.
- In our study, the mean pain score during the procedure in vaginoscopy was 2.20 vs 3.70 in hysteroscopy group (maximum of 10) with p-value of 0.001 which is statistically significant.

- In our study, the mean VAS score after the procedure in vaginoscopy was 1.16 vs 2.20 in hysteroscopy group which is statistically significant with p- value of 0.001. This all implies that vaginoscopy is less painful due to “no touch technique” without use of instruments.
- No correlation was found between pain score with parity, mode of delivery, indication and menopausal status in our study population.
- In our study population, no correlation was found between cervical negotiation with parity, mode of delivery, indication and menopausal status.
- The complications rates in both the groups are very rare if performed by expertise.
- The majority of the women in group A required no anesthesia whereas in group B majority of patients required some sort of anaesthesia (local, regional or general anesthesia).
- The mean duration required for procedure in our study, was 9.18 vs 14.22 minutes in vaginoscopy and standard hysteroscopy group respectively with p-value of 0.001 which was statistically significant. It signifies that less need of anesthesia and instrumentation saves time in vaginoscopy group.
- The majority of the women in group A required no anesthesia whereas in group B majority of patients required some sort of anaesthesia (local, regional or general anesthesia).
- In our study population, the satisfaction rate of both the groups was comparable. The mean satisfaction in group A was 8.70 (maximum 10) vs 8.62 in group B.

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KEY TO MASTER CHART

IUCD	Intra uterine contraceptive device
DMPA	Depto-medroxyprogesterone acetate
AUB	Abnormal uterine bleeding
PMB	Post menopausal bleeding
VD	Vaginal delivery
LSCS	Lower segment caesarean section
UT	Uterus
ET	Endometrial thickness
NILM	Negative for intraepithelial lesion or malignancy
LMP	Last menstrual period
PAP	Papanicolaou test
PCOS	Polycystic ovarian syndromre
B/L	Bilateral
LA	Local anesthesia
GA	General anesthesia

S. NO	NAME	AGE (YRS)	DOA	MRD NO.	BMI	LMP	PARITY	RESIDENITIAL ADDRESS	EDUCATION	OCCUPATION	SOCIOECONOMIC HISTORY	CONTRACEPTION	MENOPAUSAL STATUS	INDICATION
1	UR	55	3/9/2022	1476495	26.9	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	LOWER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB
2	J	57	2/11/2023	1460704	28.6	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	UPPER CLASS	OTHERS	POSTMENOPAUSAL	PMB
3	A	48	12/1/2023	1444840	29.3	11/20/2022	MULTIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	UPPER CLASS	OTHERS	REPRODUCTIVE	AUB
4	P	36	1/19/2023	1442927	33.5	12/28/2022	MULTIPAROUS	RURAL	UNDERGRADUATE	EMPLOYED	UPPER MIDDLE	IUCD	REPRODUCTIVE	AUB
5	S	44	5/6/2023	1505028	24.8	4/29/2023	NULLIPAROUS	RURAL	POSTGRADUATE	UNEMPLOYED	UPPER LOWER	IUCD	REPRODUCTIVE	AUB
6	R	52	4/27/2023	1505275	26.3	3/16/2023	MULTIPAROUS	RURAL	UNDERGRADUATE	UNEMPLOYED	UPPER LOWER	OTHERS	PREMENOPAUSAL	AUB
7	U	48	12/13/2022	1428710	25.9	12/10/2022	MULTIPAROUS	URBAN	UNDERGRADUATE	EMPLOYED	UPPER LOWER	OTHERS	REPRODUCTIVE	AUB
8	KK	48	12/12/2022	220780	26.1	11/23/2022	MULTIPAROUS	RURAL	UNDERGRADUATE	EMPLOYED	UPPER CLASS	OTHERS	REPRODUCTIVE	AUB
9	R	42	8/24/2023	1566821	23.8	8/5/2023	MULTIPAROUS	URBAN	GRADUATE	EMPLOYED	UPPER MIDDLE	OTHERS	REPRODUCTIVE	AUB
10	R	63	2/3/2023	1455494	23.5	POSTMENOPAUSAL	MULTIPAROUS	RURAL	GRADUATE	EMPLOYED	UPPER CLASS	OTHERS	POSTMENOPAUSAL	PMB
11	SK	73	11/17/2022	1415424	25.6	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	EMPLOYED	UPPER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB
12	GK	54	10/1/2023	1434802	26.3	POSTMENOPAUSAL	MULTIPAROUS	RURAL	UNDERGRADUATE	UNEMPLOYED	UPPER CLASS	OTHERS	POSTMENOPAUSAL	DPV
13	SP	65	10/25/2023	1610258	23.9	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	LOWER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB
14	DR	22	1/16/2024	1643468	32.1	8/16/2023	MULTIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	LOWER MIDDLE	BARRIER	REPRODUCTIVE	AUB
15	SK	58	12/5/2023	741211	29.5	POSTMENOPAUSAL	MULTIPAROUS	RURAL	UNDERGRADUATE	UNEMPLOYED	UPPER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB
16	A	49	12/7/2023	1634765	23.9	11/28/2023	MULTIPAROUS	RURAL	UNDERGRADUATE	EMPLOYED	LOWER CLASS	OTHERS	PREMENOPAUSAL	CHRONIC PELVIC PAIN
17	A	54	11/14/2023	700297	24.6	POSTMENOPAUSAL	MULTIPAROUS	RURAL	UNDERGRADUATE	EMPLOYED	LOWER CLASS	OTHERS	POSTMENOPAUSAL	PMB
18	S	38	11/9/2023	668517	27.9	11/1/2023	MULTIPAROUS	RURAL	GRADUATE	UNEMPLOYED	LOWER CLASS	BARRIER	REPRODUCTIVE	CHRONIC PELVIC PAIN
19	H	27	10/27/2023	1614663	26.8	10/17/2023	NULLIPAROUS	URBAN	GRADUATE	UNEMPLOYED	UPPER LOWER	BARRIER	REPRODUCTIVE	CHRONIC PELVIC PAIN
20	SK	53	12/23/2023	1397665	28.2	POSTMENOPAUSAL	MULTIPAROUS	RURAL	GRADUATE	UNEMPLOYED	LOWER CLASS	OTHERS	PREMENOPAUSAL	PMB
21	T	36	12/11/2023	1397864	26.2	12/1/2023	NULLIPAROUS	RURAL	UNDERGRADUATE	EMPLOYED	LOWER CLASS	BARRIER	REPRODUCTIVE	INFERTILITY
22	BK	61	11/11/2023	402855	26.7	POSTMENOPAUSAL	MULTIPAROUS	RURAL	UNDERGRADUATE	UNEMPLOYED	UPPER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB
23	S	27	11/9/2023	1247025	29.2	11/1/2023	NULLIPAROUS	URBAN	UNDERGRADUATE	EMPLOYED	UPPER LOWER	BARRIER	REPRODUCTIVE	INFERTILITY
24	J	51	11/28/2023	71737	23.9	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	LOWER CLASS	OTHERS	POSTMENOPAUSAL	PMB
25	JA	68	1/25/2024	1658390	25.3	POSTMENOPAUSAL	MULTIPAROUS	URBAN	GRADUATE	EMPLOYED	LOWER CLASS	OTHERS	POSTMENOPAUSAL	PMB
26	HK	44	1/22/2024	1584120	26.5	1/15/2024	MULTIPAROUS	URBAN	GRADUATE	UNEMPLOYED	UPPER MIDDLE	BARRIER	REPRODUCTIVE	AUB
27	RD	56	1/15/2024	8464476	29.4	POSTMENOPAUSAL	MULTIPAROUS	RURAL	GRADUATE	UNEMPLOYED	UPPER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB
28	A	29	1/16/2024	1610222	28.7	1/1/2024	NULLIPAROUS	RURAL	GRADUATE	UNEMPLOYED	LOWER MIDDLE	BARRIER	REPRODUCTIVE	INFERTILITY
29	SK	53	1/29/2024	1650579	26.4	POSTMENOPAUSAL	MULTIPAROUS	RURAL	UNDERGRADUATE	EMPLOYED	LOWER CLASS	OTHERS	POSTMENOPAUSAL	PMB
30	SA	31	1/12/2024	1561743	29.4	1/1/2024	MULTIPAROUS	RURAL	UNDERGRADUATE	UNEMPLOYED	UPPER CLASS	BARRIER	REPRODUCTIVE	AUB

S. NO	MODE OF DELIVERY	EXAM	PAP SMEAR	OTHERS	CERVICAL NEGOTIATION	INTRODUCTION OF HYSTEROSCOPE	DURING PROCEDURE (VAS)	AFTER PROCEDURE (VAS)	DURATION	COMPLICATIONS	FEASIBILITY	ANESTHESIA	SATISFACTION
1	VD	NORMAL	NILM	ET-4.7MM HETEROGENOUS	EASY	2	3	3	5	NONE	COMPLETION	GA	8
2	VD	NORMAL	ASCUS	ET-5MM	EASY	3	2	1	5	NONE	COMPLETION	NO	9
3	VD	NORMAL	NILM	ENDOMETRIAL POLYP-1CM	EASY	2	1	1	8	NONE	COMPLETION	NO	9
4	LSCS	NORMAL	NILM	NORMAL	EASY	2	8	2	8	NONE	COMPLETION	GA	7
5	NONE	NORMAL	NILM	ENDOOMETRIAL POLYP-2CM	EASY	2	2	1	5	NONE	COMPLETION	NO	9
6	LSCS	NORMAL	NILM	THICKENED ENDOMETRIUM	EASY	2	3	1	8	NONE	COMPLETION	NO	9
7	VD	NORMAL	ND	THICKENED ENDOMETRIUM26 MM	EASY	1	1	1	8	NONE	COMPLETION	NO	9
8	VD	NORMAL	NILM	THICKENED ENDOMETRIUM	EASY	1	2	1	10	NONE	COMPLETION	NO	9
9	VD	NORMAL	NILM	ADENOMYOSIS	EASY	1	1	1	15	NONE	COMPLETION	NO	9
10	VD,LSCS	NORMAL	ASCUS	ATROPHIC UTERUS	EASY	2	2	1	4	NONE	COMPLETION	LA	9
11	VD	NORMAL	NILM	ET-5MM	EASY	2	2	1	5	NONE	COMPLETION	NO	9
12	LSCS	NORMAL	NILM	ET-5MM	EASY	2	2	1	8	NONE	COMPLETION	NO	9
13	VD	NORMAL	NOT DONE	ET-14MM	EASY	2	2	1	4	NONE	COMPLETION	NO	9
14	LSCS	NORMAL	NILM	NORMAL	DIFFICULT	3	6	2	20	NONE	COMPLETION	LA	7
15	VD	NORMAL	NILM	ET-10MM	DIFFICULT	3	2	2	7	NONE	COMPLETION	GA	9
16	VD	NORMAL	NILM	ADNEXA CONGESTED	EASY	1	2	1	8	NONE	COMPLETION	NO	8
17	VD	NORMAL	NILM	ET-11.1MM	EASY	1	1	1	8	NONE	COMPLETION	NO	9
18	VD	NORMAL	NILM	ADENOMYOSIS	EASY	1	1	1	4	NONE	COMPLETION	NO	9
19	VD	NORMAL	NILM	NORMAL	EASY	1	1	1	4	NONE	COMPLETION	NO	9
20	VD	NORMAL	NILM	ET-8.2MM	EASY	1	1	1	8	NONE	COMPLETION	NO	8
21	NONE	NORMAL	NILM	NORMAL	EASY	1	2	1	8	NONE	COMPLETION	LA	9
22	VD	NORMAL	NILM	CYSTIC ENDO.HYPERPLASIA	DIFFICULT	2	3	2	16	BLEEDING	COMPLETION	REGIONAL	7
23	NONE	NORMAL	NILM	NORMAL	EASY	1	3	1	6	NONE	COMPLETION	LA	7
24	VD	NORMAL	NILM	ET-5MM	EASY	1	2	1	3	NONE	COMPLETION	LA	7
25	VD	NORMAL	NILM	ET-8MM	DIFFICULT	2	3	3	18	NONE	COMPLETION	LA	9
26	VD	NORMAL	NILM	NORMAL	EASY	2	2	2	8	NONE	COMPLETION	LA	9
27	VD	NORMAL	NILM	ET-6MM	EASY	2	1	1	8	NONE	COMPLETION	NO	9
28	VD	NORMAL	NILM	I/M FIBROID 11X10CM	EASY	1	4	1	8	NONE	COMPLETION	LA	9
29	VD	NORMAL	LSIL,HPV16+	ET-10MM	EASY	1	2	1	10	NONE	COMPLETION	LA	9
30	VD	NORMAL	NILM	ADENOMYOSIS,ENDO.POLYP	EASY	2	2	1	10	NONE	COMPLETION	NO	9

S. NO	NAME	AGE (YRS)	DOA	MRD NO.	BMI	LMP	PARITY	RESIDENITIAL ADDRESS	EDUCATION	OCCUPATION	SOCIOECONOMIC HISTORY	CONTRACEPTION	MENOPAUSAL STATUS	INDICATION
31	JK	31	1/22/2024	1653681	26.5	1/15/2024	MULTIPAROUS	URBAN	POSTGRADUATE	EMPLOYED	LOWER CLASS	BARRIER	REPRODUCTIVE	AUB
32	EG	52	1/6/2024	1060120	27.2	POSTMENOPAUSAL	MULTIPAROUS	RURAL	UNDERGRADUATE	UNEMPLOYED	UPPER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB
33	P	60	11/30/2023	1627914	26.4	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	EMPLOYED	UPPER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB
34	Y	54	12/10/2023	1670732	27.5	12/1/2023	MULTIPAROUS	RURAL	UNDERGRADUATE	EMPLOYED	LOWER CLASS	OTHERS	PREMENOPAUSAL	PERIMENOPAUSAL AUB
35	R	72	2/8/2024	16634479	26.4	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	LOWER CLASS	OTHERS	POSTMENOPAUSAL	PMB
36	SP	61	2/13/2024	45268	23.4	POSTMENOPAUSAL	MULTIPAROUS	RURAL	UNDERGRADUATE	EMPLOYED	UPPER LOWER	OTHERS	POSTMENOPAUSAL	PMB
37	HK	51	2/13/2024	761658	26.4	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	EMPLOYED	UPPER LOWER	OTHERS	POSTMENOPAUSAL	PMB
38	K	37	2/17/2024	57065	24.9	2/10/2024	MULTIPAROUS	RURAL	POSTGRADUATE	EMPLOYED	LOWER CLASS	BARRIER	REPRODUCTIVE	AUB
39	G	29	2/19/2024	1445845	25.3	2/18/2024	NULLIPAROUS	RURAL	POSTGRADUATE	UNEMPLOYED	LOWER CLASS	BARRIER	REPRODUCTIVE	INFERTILITY
40	HK	45	1/23/2024	1554120	26.4	1/17/2024	MULTIPAROUS	RURAL	POSTGRADUATE	UNEMPLOYED	UPPER MIDDLE	BARRIER	REPRODUCTIVE	CHRONIC PELVIC PAIN
41	SB	54	1/25/2024	1658736	27.3	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	LOWER CLASS	OTHERS	POSTMENOPAUSAL	PMB
42	SL	32	2/1/2024	1659327	24.6	12/20/2023	MULTIPAROUS	URBAN	UNDERGRADUATE	EMPLOYED	LOWER CLASS	BARRIER	REPRODUCTIVE	AUB
43	G	35	2/15/2024	11257	28.1	1/24/2024	NULLIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	UPPER CLASS	BARRIER	REPRODUCTIVE	INFERTILITY
44	U	42	1/18/2024	1648301	29.1	1/10/2024	MULTIPAROUS	URBAN	GRADUATE	EMPLOYED	UPPER MIDDLE	BARRIER	REPRODUCTIVE	AUB
45	KC	58	2/20/2024	1674367	30.1	POSTMENOPAUSAL	MULTIPAROUS	RURAL	UNDERGRADUATE	UNEMPLOYED	UPPER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB
46	S	42	10/17/2023	1529976	29.8	10/10/2023	MULTIPAROUS	URBAN	UNDERGRADUATE	EMPLOYED	UPPER MIDDLE	BARRIER	REPRODUCTIVE	AUB
47	KS	59	3/26/2024	944211	24.5	POSTMENOPAUSAL	MULTIPAROUS	RURAL	UNDERGRADUATE	UNEMPLOYED	LOWER CLASS	OTHERS	POSTMENOPAUSAL	PMB
48	VS	45	3/26/2023	1700805	26.4	3/12/2023	MULTIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	LOWER CLASS	OTHERS	REPRODUCTIVE	AUB
49	UD	42	1/26/2024	1713645	23.8	1/20/2024	MULTIPAROUS	RURAL	UNDERGRADUATE	UNEMPLOYED	LOWER CLASS	OTHERS	REPRODUCTIVE	AUB
50	GK	40	1/25/2024	1713775	26.2	1/19/2024	MULTIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	UPPER CLASS	BARRIER	REPRODUCTIVE	AUB
51	K	38	8/7/2023	836794	23.9	8/1/2023	MULTIPAROUS	RURAL	POSTGRADUATE	UNEMPLOYED	UPPER CLASS	BARRIER	REPRODUCTIVE	CHRONIC PELVIC PAIN
52	M	60	8/22/2023	1574766	26	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	EMPLOYED	UPPER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB
53	NM	36	8/12/2023	1510049	24	8/1/2023	MULTIPAROUS	RURAL	POSTGRADUATE	UNEMPLOYED	LOWER MIDDLE	DMPA	REPRODUCTIVE	AUB
54	J	40	8/29/2023	1573568	28	8/13/2023	MULTIPAROUS	RURAL	GRADUATE	UNEMPLOYED	UPPER LOWER	BARRIER	REPRODUCTIVE	AUB
55	A	33	8/29/2023	1579677	27.4	8/23/2023	NULLIPAROUS	RURAL	POSTGRADUATE	UNEMPLOYED	LOWER MIDDLE	IUCD	REPRODUCTIVE	INFERTILITY
56	H	56	3/1/2023	1440634	31.2	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	EMPLOYED	LOWER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB

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31	VD	NORMAL	NILM	ENDOMETRIAL POLYP-1CM	EASY	1	2	1	10	NONE	COMPLETION	NO	9
32	VD	NORMAL	NILM,HP VNEG	NORMAL	EASY	2	3	1	8	NONE	COMPLETION	NO	9
33	VD	NORMAL	NILM	ET-9MM	EASY	1	3	1	8	NONE	COMPLETION	NO	9
34	VD	NORMAL	NILM	ET-10MM	EASY	2	2	1	9	NONE	COMPLETION	NO	8
35	VD	NORMAL	ASCUS	ET-7MM	EASY	1	2	1	8	NONE	COMPLETION	NO	9
36	VD	NORMAL	NILM	UTERINE FIBROID S/M 2X 3CM	EASY	2	3	1	9	NONE	COMPLETION	LA	9
37	VD	NORMAL	NILM	ET-5MM FIBROID1X1.2CM	DIFFICULT	3	3	1	10	NONE	COMPLETION	LA	9
38	VD	NORMAL	NILM	NORMAL	EASY	2	1	0	7	NONE	COMPLETION	NO	9
39	NONE	NORMAL	NILM	ENDOMETRIAL POLYP-1CM	EASY	2	1	1	10	NONE	COMPLETION	NO	9
40	VD	NORMAL	NILM	ADNEXA CONGESTED	EASY	2	4	1	15	NONE	COMPLETION	LA	9
41	LSCS	NORMAL	NILM	NORMAL	EASY	1	4	2	25	NONE	COMPLETION	REGIONAL	9
42	LSCS	NORMAL	NILM	NORMAL	EASY	2	1	0	20	NONE	COMPLETION	NO	9
43	NONE	NORMAL	NILM	MULTIPLE ENDO.POLYPS	EASY	1	4	1	20	NONE	COMPLETION	GA	9
44	VD	NORMAL	NILM	NORMAL	EASY	2	2	1	8	NONE	COMPLETION	LA	9
45	VD	NORMAL	NILM	ENDOMETRIAL CA	EASY	1	1	1	5	NONE	COMPLETION	NO	9
46	VD	NORMAL	NILM	ADENO	EASY	1	1	1	8	NONE	COMPLETION	NO	9
47	LSCS	NORMAL	NILM	ENDOMETRIAL POLYP-2CM	EASY	1	1	1	8	NONE	COMPLETION	NO	9
48	VD	NORMAL	NILM	ADENOMYOSIS	EASY	1	1	1	8	NONE	COMPLETION	NO	8
49	VD	NORMAL	NILM	ENDOMETRIAL POLYP-2CM	EASY	1	1	1	8	NONE	COMPLETION	NO	9
50	VD	NORMAL	NILM	ADENOMYOSIS	EASY	1	1	1	8	NONE	COMPLETION	NO	9
51	LSCS	POD OBLITERATED	NILM	OVARIAN ENDOMETRIOMA	EASY	4	3	2	10	NONE	COMPLETION	GA	9
52	VD	CERVICAL EROSION	ASCUS	NORMAL	EASY	3	4	3	12	NONE	CMPLETION	REGIONAL	9
53	VD	NORMAL	NILM	ENDOMETRIAL POLYP	EASY	3	2	2	10	NONE	COMPLETION	LA	9
54	VD	NORMAL	NILM	ADENOMYOSIS	EASY	4	4	3	12	NONE	COMPLETION	GA	9
55	NONE	NORMAL	NOT DONE	ENDOMETRIAL POLYP	EASY	3	5	3	15	NONE	COMPLETION	GA	9
56	LSCS	CERVICAL POLYP	NILM	MULTIPLE FIBROIDS ET-5MM	DIFFICULT	4	6	3	20	NONE	COMPLETION	NO	7

S. NO	NAME	AGE (YRS)	DOA	MRD NO.	BMI	LMP	PARITY	RESIDENITIAL ADDRESS	EDUCATION	OCCUPATION	SOCIOECONOMIC HISTORY	CONTRACEPTION	MENOPAUSAL STATUS	INDICATION
57	P	55	11/14/2022	1414356	22.6	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	EMPLOYED	UPPER LOWER	OTHERS	POSTMENOPAUSAL	PMB
58	EB	46	2/25/2023	535	23.1	1/28/2023	MULTIPAROUS	RURAL	POSTGRADUATE	EMPLOYED	UPPER CLASS	BARRIER	REPRODUCTIVE	CHRONIC PELVIC PAIN
59	H	62	9/5/2023	1582287	29	POSTMENOPAUSAL	MULTIPAROUS	RURAL	UNDERGRADUATE	UNEMPLOYED	UPPER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB
60	I	40	9/5/2023	1576868	29	8/11/2023	MULTIPAROUS	URBAN	UNDERGRADUATE	EMPLOYED	LOWER MIDDLE	IUCD	REPRODUCTIVE	AUB
61	P	67	1/6/2023	1527388	28.7	POSTMENOPAUSAL	MULTIPAROUS	RURAL	UNDERGRADUATE	EMPLOYED	UPPER LOWER	OTHERS	POSTMENOPAUSAL	PMB
62	RR	30	1/28/2023	1450098	29.9	10/13/2023	MULTIPAROUS	URBAN	POSTGRADUATE	EMPLOYED	UPPER CLASS	BARRIER	REPRODUCTIVE	AUB
63	RK	29	4/27/2023	1477032	32	3/25/2023	NULLIPAROUS	RURAL	POSTGRADUATE	UNEMPLOYED	UPPER MIDDLE	IUCD	REPRODUCTIVE	INFERTILITY
64	R	31	2/25/2023	1366466	23.6	3/26/2023	MULTIPAROUS	RURAL	POSTGRADUATE	UNEMPLOYED	UPPER MIDDLE	IUCD	REPRODUCTIVE	AUB
65	V	52	1/5/2023	1440922	23.6	12/30/2022	MULTIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	UPPER CLASS	OTHERS	PREMENOPAUSAL	AUB
66	SK	45	11/23/2022	1411195	30.1	11/14/2022	MULTIPAROUS	URBAN	POSTGRADUATE	EMPLOYED	LOWER MIDDLE	IUCD	REPRODUCTIVE	AUB
67	P	26	10/21/2023	1414186	32	10/16/2023	NULLIPAROUS	URBAN	GRADUATE	UNEMPLOYED	LOWER MIDDLE	BARRIER	REPRODUCTIVE	INFERTILITY
68	SP	49	10/21/2023	1611544	25.2	10/11/2023	MULTIPAROUS	RURAL	GRADUATE	EMPLOYED	UPPER LOWER	BARRIER	PREMENOPAUSAL	AUB
69	KB	49	10/20/2023	83903	26	6/6/2023	MULTIPAROUS	RURAL	GRADUATE	EMPLOYED	UPPER LOWER	OTHERS	PREMENOPAUSAL	CHRONIC PELVIC PAIN
70	G	50	9/3/2023	1578936	26.1	8/24/2023	MULTIPAROUS	RURAL	UNDERGRADUATE	UNEMPLOYED	LOWER MIDDLE	OTHERS	PREMENOPAUSAL	AUB
71	J	32	9/2/2023	1518008	26.3	8/22/2023	MULTIPAROUS	RURAL	GRADUATE	UNEMPLOYED	UPPER CLASS	BARRIER	REPRODUCTIVE	INFERTILITY
72	N	38	10/2/2023	1583816	27.6	9/15/2023	MULTIPAROUS	URBAN	GRADUATE	UNEMPLOYED	UPPER CLASS	BARRIER	REPRODUCTIVE	CHRONIC PELVIC PAIN
73	J	49	10/5/2023	664900	26.3	9/15/2023	MULTIPAROUS	RURAL	POSTGRADUATE	EMPLOYED	LOWER MIDDLE	OTHERS	PREMENOPAUSAL	AUB
74	S	37	10/25/2023	1613665	27.1	10/5/2023	MULTIPAROUS	URBAN	UNDERGRADUATE	EMPLOYED	LOWER MIDDLE	IUCD	REPRODUCTIVE	INFERTILITY
75	S	28	9/14/2023	147617	29.8	9/7/2023	NULLIPAROUS	URBAN	POSTGRADUATE	EMPLOYED	UPPER LOWER	BARRIER	REPRODUCTIVE	INFERTILITY
76	P	38	9/27/2023	1586047	28.5	9/20/2023	MULTIPAROUS	URBAN	POSTGRADUATE	UNEMPLOYED	UPPER LOWER	BARRIER	REPRODUCTIVE	INFERTILITY
77	S	45	11/21/2022	1418252	23.9	11/13/2022	MULTIPAROUS	RURAL	GRADUATE	UNEMPLOYED	UPPER LOWER	OTHERS	REPRODUCTIVE	AUB
78	AR	68	2/21/2023	152118	33.5	POSTMENOPAUSAL	MULTIPAROUS	RURAL	UNDERGRADUATE	UNEMPLOYED	UPPER CLASS	OTHERS	POSTMENOPAUSAL	PMB
79	HK	36	7/11/2023	1618931	26.3	7/5/2023	MULTIPAROUS	RURAL	POSTGRADUATE	EMPLOYED	UPPER CLASS	IUCD	REPRODUCTIVE	AUB

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57	VD	CERVIX BULKY	NILM	NORMAL	EASY	3	1	1	12	NONE	COMPLETION	NO	9
58	LSCS	NORMAL	NILM	NORMAL	EASY	3	1	1	8	NONE	COMPLETION	NO	9
59	VD	CERVICAL STENOSIS	NILM	ENDOMETRIAL POLYP	DIFFICULT	3	4	2	15	NONE	COMPLETION	REGIONAL	8
60	VD	CERVICAL STENOSIS	NILM	ENDOMETRIAL POLYP	DIFFICULT	4	4	2	15	NONE	COMPLETION	GA	7
61	VD	1ST DEGREE UV DESCENT	NILM	ET-18.9MM	EASY	3	4	2	12	NONE	COMPLETION	GA	8
62	LSCS	NORMAL	NILM	LEFT OVARIAN CYST	DIFFICULT	5	7	2	10	BLEEDING	COMPLETION	GA	8
63	NONE	NORMAL	NILM	NORMAL	EASY	3	4	2	18	NONE	COMPLETION	REGIONAL	9
64	LSCS	UT-12 WEEKS	NILM	RT.HAEMORRHAGIC CYST 16MM	EASY	3	3	2	12	NONE	COMPLETION	GA	9
65	LSCS	UT-12-14 WEEKS	NOT DONE	UTERINE FIBROID 5.3CM	EASY	3	2	2	7	NONE	COMPLETION	LA	9
66	LSCS	UT 6-8WEEKS	NILM	ET-18.9MM	EASY	4	4	2	8	NONE	COMPLETION	GA	9
67	NONE	CERVICAL STENOSIS	NILM	PCOS	DIFFICULT	4	5	3	17	NONE	COMPLETION	GA	9
68	VD	CERVICAL EROSION	NILM	I/M FIBROID 2X2CM	EASY	4	3	3	7	NONE	COMPLETION	LA	9
69	LSCS	NORMAL	NILM	B/L OVARIAN CYST	EASY	4	3	2	15	NONE	COMPLETION	GA	9
70	VD	NORMAL	NILM	CYSTIC ENDOMETRIAL HYPERPLASIA	EASY	4	4	3	18	NONE	COMPLETION	REGIONAL	9
71	VD	UT-6-8WEEKS	NILM	CPT -B/L CORNUAL BLOCK	DIFFICULT	5	8	2	15	BLEEDING	COMPLETION	GA	7
72	LSCS	NORMAL	NILM	B/L OVARIAN CYST	EASY	4	3	2	10	NONE	COMPLETION	GA	9
73	LSCS	NORMAL	NILM	FIBROID-2 X 2 CM	EASY	4	2	2	7	NONE	COMPLETION	LA	9
74	VD	NORMAL	NILM	ENDOMETRIAL POLYP 1.5CM	EASY	4	3	2	8	NONE	COMPLETION	GA	9
75	NONE	NORMAL	NILM	ET-10MM	EASY	3	3	1	5	NONE	COMPLETION	GA	9
76	VD	NORMAL	NILM	S/M FIBROID 2X 3 CM	EASY	3	3	1	5	NONE	COMPLETION	LA	9
77	VD	NORMAL	NILM	FIBROID S/M 3CM	EASY	4	4	1	13	NONE	COMPLETION	GA	9
78	VD	SENILE CHANGES	NILM	ET 5MM	DIFFICULT	5	8	2	15	BLEEDING	COMPLETION	REGIONAL	9
79	VD	NORMAL	NILM	FIBROID I/M 4CM	EASY	3	4	2	20	NONE	COMPLETION	LA	9

S. NO	NAME	AGE (YRS)	DOA	MRD NO.	BMI	LMP	PARITY	RESIDENITIAL ADDRESS	EDUCATION	OCCUPATION	SOCIOECONOMIC HISTORY	CONTRACEPTION	MENOPAUSAL STATUS	INDICATION
80	A	34	5/23/2023	455565	28.2	4/28/2023	NULLIPAROUS	RURAL	POSTGRADUATE	EMPLOYED	UPPER CLASS	IUCD	REPRODUCTIVE	INFERTILITY
81	GD	38	4/18/2022	1289078	26.9	4/4/2022	MULTIPAROUS	RURAL	POSTGRADUATE	EMPLOYED	LOWER MIDDLE	BARRIER	REPRODUCTIVE	AUB
82	K	63	2/21/2023	1457719	28.7	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	LOWER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB
83	SJ	42	1/25/2023	26642	29.7	1/20/2023	MULTIPAROUS	RURAL	GRADUATE	UNEMPLOYED	UPPER MIDDLE	BARRIER	REPRODUCTIVE	AUB
84	JK	38	2/14/2023	1462613	28.5	2/1/2023	MULTIPAROUS	URBAN	POSTGRADUATE	UNEMPLOYED	UPPER LOWER	BARRIER	REPRODUCTIVE	CHRONIC PELVIC PAIN
85	R	42	8/24/2023	1566821	27.6	8/16/2023	MULTIPAROUS	URBAN	GRADUATE	EMPLOYED	UPPER CLASS	BARRIER	REPRODUCTIVE	CHRONIC PELVIC PAIN
86	SK	72	4/8/2023	1555082	30.5	POSTMENOPAUSAL	MULTIPAROUS	RURAL	UNDERGRADUATE	UNEMPLOYED	UPPER CLASS	OTHERS	POSTMENOPAUSAL	PMB
87	KK	40	8/31/2023	1580775	28.5	8/20/2023	MULTIPAROUS	RURAL	UNDERGRADUATE	UNEMPLOYED	LOWER MIDDLE	BARRIER	REPRODUCTIVE	AUB
88	H	31	7/20/2023	1208743	27.6	7/20/2023	MULTIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	LOWER MIDDLE	BARRIER	REPRODUCTIVE	INFERTILITY
89	I	59	1/7/2023	1544133	28.5	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	UNEMPLOYED	LOWER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB
90	SP	65	10/26/2023	1610258	26.8	POSTMENOPAUSAL	MULTIPAROUS	URBAN	UNDERGRADUATE	EMPLOYED	UPPER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB
91	SK	35	6/10/2023	1596204	26.8	6/5/2023	MULTIPAROUS	RURAL	UNDERGRADUATE	EMPLOYED	LOWER MIDDLE	IUCD	REPRODUCTIVE	AUB
92	RG	40	10/21/2023	568280	25	10/16/2023	MULTIPAROUS	RURAL	GRADUATE	EMPLOYED	UPPER CLASS	BARRIER	REPRODUCTIVE	AUB
93	S	35	2/11/2023	1617288	24.9	2/5/2023	MULTIPAROUS	URBAN	GRADUATE	EMPLOYED	LOWER MIDDLE	BARRIER	REPRODUCTIVE	INFERTILITY
94	KV	40	6/9/2023	771599	26.3	6/1/2023	MULTIPAROUS	RURAL	GRADUATE	UNEMPLOYED	LOWER MIDDLE	BARRIER	REPRODUCTIVE	AUB
95	SJ	43	9/12/2023	20839	24.9	9/1/2023	MULTIPAROUS	URBAN	GRADUATE	UNEMPLOYED	UPPER CLASS	BARRIER	REPRODUCTIVE	AUB
96	VG	48	10/19/2023	1603165	26.2	10/12/2023	MULTIPAROUS	RURAL	GRADUATE	UNEMPLOYED	UPPER MIDDLE	IUCD	REPRODUCTIVE	AUB
97	A	43	1/12/2023	298741	23.8	1/1/2023	MULTIPAROUS	URBAN	GRADUATE	EMPLOYED	LOWER MIDDLE	IUCD	REPRODUCTIVE	AUB
98	R	32	2/3/2024	1659327	23.8	1/27/2023	MULTIPAROUS	RURAL	GRADUATE	EMPLOYED	UPPER CLASS	BARRIER	REPRODUCTIVE	AUB
99	JK	38	2/27/2024	1022890	31.6	2/15/2024	MULTIPAROUS	URBAN	POSTGRADUATE	EMPLOYED	LOWER MIDDLE	BARRIER	REPRODUCTIVE	AUB
100	R	51	1/27/2023	497476	28.6	POSTMENOPAUSAL	MULTIPAROUS	RURAL	GRADUATE	EMPLOYED	LOWER MIDDLE	OTHERS	POSTMENOPAUSAL	PMB

S. NO	MODE OF DELIVERY	EXAM	PAP SMEAR	OTHERS	CERVICAL NEGOTIATION	INTRODUCTION OF HYSTEROSCOPE	DURING PROCEDURE (VAS)	AFTER PROCEDURE (VAS)	DURATION	COMPLICATIONS	FEASIBILITY	ANESTHESIA	SATISFACTION
80	NONE	NORMAL	NILM	NORMAL	EASY	4	2	2	20	NONE	COMPLETION	LA	9
81	LSCS	NORMAL	NILM	NORMAL	EASY	3	3	2	15	NONE	COMPLETION	LA	9
82	VD	NORMAL	NILM	NORMAL	EASY	4	3	2	20	NONE	COMPLETION	LA	9
83	VD	NORMAL	NILM	NORMAL	EASY	4	3	2	18	NONE	COMPLETION	NO	9
84	VD	NORMAL	NILM	UT-8WEEKS	EASY	4	3	2	15	NONE	COMPLETION	NO	9
85	VD	NORMAL	NILM	ADNEXAL CONGESTION	EASY	4	3	2	15	NONE	COMPLETION	LA	9
86	VD	SENILE CHANGES	NILM	ET-5MM	EASY	3	3	2	15	NONE	COMPLETION	LA	9
87	LSCS	UT-8-10WEEKS	NILM	ADENOMYOSIS	EASY	3	4	2	16	NONE	COMPLETION	LA	9
88	LSCS	NORMAL	NILM	ENDOMETRIAL POLYP-2CM	EASY	4	3	2	15	NONE	COMPLETION	NO	9
89	VD	NORMAL	NILM	ET-7MM	EASY	4	4	2	14	NONE	COMPLETION	LA	9
90	VD	NORMAL	NILM	ENDOMETRIAL POLYP-2CM	EASY	4	4	2	15	NONE	COMPLETION	LA	9
91	VD	NORMAL	NILM	ADENOMYOSIS	EASY	4	4	3	15	NONE	COMPLETION	LA	8
92	VD	NORMAL	NILM	ADENOMYOSIS	EASY	4	3	3	14	NONE	COMPLETION	LA	9
93	VD	NORMAL	NILM	ENDOMETRIAL POLYP	EASY	3	4	3	20	NONE	COMPLETION	GA	8
94	LSCS	NORMAL	NILM	ENDOMETRIAL POLYP -2CM	EASY	4	4	3	15	NONE	COMPLETION	LA	8
95	VD	NORMAL	NILM	ADENOMYOSIS	EASY	4	4	3	15	NONE	COMPLETION	LA	8
96	LSCS	NORMAL	NILM	FIBROID-2 X 2 CM	EASY	4	3	2	16	NONE	COMPLETION	REGIONAL	9
97	LSCS	NORMAL	NILM	ADENOMYOSIS	EASY	4	4	3	25	NONE	COMPLETION	GA	7
98	LSCS	NORMAL	NILM	THIN ATROPHIC ET	EASY	4	4	3	20	NONE	COMPLETION	GA	7
99	LSCS	NORMAL	NILM	UTERINE POLYP-2X1CM	EASY	4	4	2	20	NONE	COMPLETION	GA	8
100	VD	NORMAL	NILM	ET-8MM	EASY	3	5	3	22	NONE	COMPLETION	GA	8

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No. BFUHS/2K23p-TH/ 22 **Date** 1/1/2024

The Principal
Dayanand Medical College & Hospital
Ludhiana

Subject:: Approval of Plan of Thesis.

This is to inform you that the Faculty of Medical Sciences in its meeting held on 25.09.2023 has approved the plan of thesis of **Baljinder Kaur**, a student of your college for **MD (Obstetrics & Gynaecology)** along with the names of Supervisor/Co-Supervisor as under:-

Topic Plan of Thesis
To compare the vaginoscopic hysteroscopy approach with standard hysteroscopy .

Supervisor	**Co-Supervisor:-**	Co-Supervisor-
Dr. Ashima Taneja Prof. & Head Dept. of Obstetrics & Gynaecology	Dr. Pooja Tandon Assoc. Professor Dept. of Obstetrics & Gynaecology	Dr. Kanupriya Jain Assoc. Professor Dept. of Obstetrics & Gynaecology

The student may submit the thesis in triplicate alongwith the plan in triplicate also, to the Controller of Examinations, BFUHS, Faridkot, at least six months before the commencement of theory examination, if he/she is otherwise eligible to take the examination. He /She may be directed to attach a photocopy of this letter with the forwarding letter while submitting thesis in the University along with the letter of approval of University for change of supervisor/Co-Supervisor, change of topic, if any.

Controller of Examinations

Note :

1. *If any discrepancy found regarding topic of thesis or Supervisor/Co-Supervisor, inform undersigned within one month after issue of this letter.*

TO COMPARE THE VAGINOSCOPIC HYSTEROSCOPY APPROACH WITH STANDARD HYSTEROSCOPY

THESIS PROPOSAL

FOR APPROVAL OF SUBJECT OF THESIS TO BE SUBMITTED IN

PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

MD

IN

OBSTETRICS & GYNAECOLOGY

OF THE

BABA FARID UNIVERSITY OF HEALTH SCIENCES

FARIDKOT

AUGUST, 2022

DR. BALJINDER KAUR

DEPARTMENT OF OBSTETRICS & GYNAECOLOGY
DAYANAND MEDICAL COLLEGE AND HOSPITAL
LUDHIANA

ABSTRACT OF PLAN OF THESIS

Title	TO COMPARE THE VAGINOSCOPIC HYSTEROSCOPY APPROACH WITH STANDARD HYSTEROSCOPY
For the degree of	MD (Obstetrics &Gynaecology)
Name of the candidate	Dr. Baljinder Kaur,
Supervisor	Dr. Ashima Taneja, Professor & Head, Department of Obstetrics & Gynaecology, DMCH, Ludhiana
Co-supervisor(s)	Dr. Pooja Tandon , Associate Professor , Department of Obstetrics & Gynaecology, DMCH, Ludhiana Dr. Kanupriya Jain, Associate Professor , Department of Obstetrics & Gynaecology, DMCH, Ludhiana
Institution	Dayanand Medical College and Hospital, Ludhiana
University	Baba Farid University of Health Sciences, Faridkot

Introduction: Optimal management of endometrial disease requires accurate and timely diagnosis followed by effective treatment. Modern outpatient hysteroscopy can be utilized as a first line method for diagnostic procedure. No touch technique (vaginoscopy) has been introduced in an attempt to make the procedure less painful as it includes reduced anesthetic risks and is cost effective.

Aim of Study: To compare the feasibility, safety and acceptibility of vaginoscopic hysteroscopy and standard hysteroscopy.

Materials & Methods: This is a hospital based prospective study which will be conducted on 100 women in department of obstetrics and gynaecology, DMC&H, Ludhiana .

After taking informed consent patients will be randomised into 2 groups.

- Group A (n= 50) patients who will be undergoing vaginoscopic hysteroscopy
- Group B (n= 50) who will be undergoing standard hysteroscopy.

Clinical Significance: Vaginoscopic hysteroscopy is less painful, safe and more successful than existing approaches to standard hysteroscopy. Vaginoscopic hysteroscopy has significant reduction in procedural pain with similar efficacy to standard hysteroscopy.

Keywords: Abnormal uterine bleeding, hysteroscopy, vaginoscopy.

Baljinder
(Signature) Candidate

(Signature) Co-supervisor

(Signature) Co-supervisor

(Signature) Supervisor

(Signature) Principal

CERTIFICATE OF FACILITIES AVAILABLE

This is to certify that the facilities for work on the subject of thesis titled **"TO COMPARE THE VAGINOSCOPIC HYSTEROSCOPY APPROACH WITH STANDARD HYSTEROSCOPY"** exist in the Department of Gynaecology, DMC&H, Ludhiana and will be provided to the candidate. We will see that the data being included in the thesis is genuine and is collected by the candidate herself under our supervision and guidance.

Supervisor

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Place : DMCH, LUDHIANA

Date : _____

APPROVAL PROFORMA
BY
RESEARCH & ETHICAL COMMITTEE
DAYANAND MEDICAL COLLEGE & HOSPITAL, LUDHIANA

Name of candidate	Dr. Baljinder Kaur
Department	Obstetrics & Gynaecology
Topic of Thesis	TO COMPARE THE VAGINOSCOPIC HYSTEROSCOPY APPROACH WITH STANDARD HYSTEROSCOPY
Likely date of appearing in PG examination	May/ June, 2024
Date of enrollment	30th June, 2022
Name of Head of Department	Dr. AshimaTaneja
1) Supervisor **2) Co-Supervisor(s)**	Dr. Ashima Taneja Dr. Pooja Tandon Dr.Kanupriya Jain
Signature of Members of Research Committee with Stamp	**Signature of Members of Ethics Committee with Stamp**
Dr. Harpreet Kaur (Professor & Head, Pathology)	Mr. R K Sharma (Legal Expert)
Dr. Jaspal Singh (Professor & Head, Surgery)	Dr. Ramit Mahajan (Associate Professor, Gastroenterology)
Dr. Dinesh Gupta (Professor & Head, Medicine)	Dr. Anu Sharma (Professor, Anatomy)
Dr. Sandeep Kaushal (Dean Academics & Professor & Head, Pharmacology)	Dr. Sandeep Kaushal (Dean Academics & Professor & Head, Pharmacology)
Dr. Gurpreet S Wander (Vice Principal)	Dr. Gurpreet S Wander (Vice Principal & Professor & Head, Cardiology)
	Dr. Gagandeep Singh (Secretary, Ethics Committee Professor & Head, Neurology)

Approved: Yes / ~~No~~

Dr. Sandeep Puri
Chairperson
Research Committee
Chairperson
Research Committee

Approved: Yes / ~~No~~

Prof. Arvind Malhotra
Chairman
Ethics Committee
Chairperson
Ethics Committee

BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1	NAME OF THE CANDIDATE AND ADDRESS	Dr. BALJINDER KAUR VPO SABHRA , TEH. PATTI, DISTT. TARN- TARAN
2	NAME OF THE INSTITUTE	DAYANAND MEDICAL COLLEGE AND HOSPITAL, LUDHIANA
3	COURSE OF STUDY AND SUBJECT	MD, OBSTETRICS AND GYNAECOLOGY
4	DATE OF ADMISSION OF COURSE	30th JUNE 2022
5	TITLE OF THE TOPIC	TO COMPARE THE VAGINOSCOPIC HYSTEROSCOPY APPROACH WITH STANDARD HYSTEROSCOPY

6. BRIEF RESUME OF THE INTENDED WORK

6.1 NEED FOR THE STUDY

Hysteroscopy is a technique in which telescope is used to visualize intrauterine pathology. Induced pain is the greatest barrier to hysteroscopy in office setting.

Vaginoscopy is an another technique of insertion of hysteroscope to visualize the vagina. This is an alternative method for performing hysteroscopy.

Optimal management of endometrial disease requires accurate and timely diagnosis followed by effective treatment.modern outpatient hysteroscopy can be utilized as a first line method for both a diagnostic and therapeutic procedure.[1] Outpatient hysteroscopy have many advantages over inpatient hysteroscopy under general anaesthesia. It includes reduced anesthetic risk and cost effective.

Outpatient hysteroscopy is acutely painful since it involves placement of a cervical tenaculum, traction on the cervix and insertion of hysteroscope into the cervical canal and the uterine cavity.

No touch technique (vaginoscopy) was introduced by Bettochi and Selvaggi used in an attempt to make the procedure less painful.

The vaginoscopic approach is associated with reduction in the procedural pain and side effects, is quicker and reduces the likelihood of vasovagal episodes.[2] Vaginoscopy facilitates hysteroscopic procedures because it allows greater manoeuvrability of the hysteroscope within the uterine cavity because there is no vaginal speculum restricting movement. Nulliparous women, suffering from vaginismus , those with genital tract atrophy will also likely benefit the most from the vaginoscopic approach, where vaginal distension is minimised

6.2 REVIEW OF LITERATURE:

Hysteroscopy is a technique in which telescope is used to visualize intrauterine pathology. Optimal management of endometrial disease requires accurate and timely diagnosis followed by effective treatment. Diagnostic hysteroscopy has become a popular technique worldwide for evaluating the uterine cavity in case of abnormal uterine bleeding, infertility and recurrent pregnancy losses. Hysteroscopy uses 5 mm hysteroscopes with a 4 mm outer diameter telescope and 5 mm outer diameter single flow diagnostic sheath, speculum and tenaculum to grasp the uterine cervix and steady the uterus. Cervical dilatation and local anesthesia are required therefore hysteroscopy is considerd invasive and painful procedure.[3]

The introduction of hysteroscopy has been proved to be a powerful diagnostic tool for visualizing the cervical canal and the uterine cavity but the main limitation is to use it in patients with pain.[4]

Bettochi and Selvaggi introduced vaginocopic no touch technique and found out that it significantly lower pain perception in patients compared with traditional hysteroscopy.[5]

Modern outpatient technique can be utillised as a first line method for both a diagnostic and therapeutic procedure. Outpatient hysteroscopy has many advantages over inpatient hysteroscopy which is done under general anesthesia. Advantages include reduced anaesthetic risks and cost effectiveness

The vaginoscopic approach also known as no touch technique use a small diameter irrigating endoscope which smoothly traverse the vaginal canal and cervix and avoids the use of speculum and tenaculum and minimizes the patient pain and discomfort.[6] It uses 1-2 mm lower in caliber telescopes compared to hysteroscopy.It minimizes the pain experienced by the patient or reduce the propensity to fainting. The studies show acceptability of the examination is far greater with vaginoscopy than with hysteroscopy.[7] The pain score reported was 10 times lower in vaginoscopy. Incidence of side effects was also lower with vaginoscopy.[8] The incidence of vagal reactions was 8 times lower than that with hysteroscopy. The vaginoscopy approach without using

speculum and tenaculum, and the use of saline as distension medium could also explain the lower incidence of side effects in vaginoscpy approach compared to hysteroscopic approach.[9] Induced pain is the greatest barrier to hysteroscopy in an office setting.[10]

No touch technique ‘vaginoscopy’ introduced by Bettochi and Selvaggi has been successfully used in an attempt to make the procedure less painful.[11]

Vaginoscopic technique has advantage of elimination of any type of premedication, analgesia, or anesthesia, making the procedure faster with acceptable failure rates. This all supports the use of vaginoscopy over the traditional hysteroscopy.[12]

A study was conducted by Tien, Chin-Tzuet[13] al in 2021 which shows the success rates of vaginoscopy and standard hysteroscopy was comparable (95.5% vs 96.3%). The medium used to complete the vaginoscopy (135 seconds) was significantly shorter than to complete a traditional hysteroscopy(190 seconds). The median pain score was 3 foe vaginoscopy which was significantly lower than that for standard hysteroscopy which was 5.and it was noted that there was no significant differences in the surgical complication rate between vaginoscopy(n=4) and hysteroscopy(n =3). The mean time was 5.71 for traditional hysteroscopy and 4.44 for vaginoscopic approach.

The vaginoscopic approach to traditional office hysteroscopy is quicker lesser painful land reduces the likelihood of vasovagal reaction when compared to traditional hysteroscopywhich employs the use of vaginal speculum or cervical instrumentation or local anesthesia.[14]

Vaginal speculum should be used only when vaginoscopy fails or when cervical dilatation is anticipated.

The vaginoscopic approach is associated with the reduction in Pain, procedural time, side effects and complications when compared to traditional hysteroscopy.[15]

Pain continues to be represent the main limiting factor to a large scale use of traditional hysteroscopy . Although reduction in pain isclearly advantageous in outpatients procedures to optimize the acceptability to

patients but it doesn't demonstrate any improvement in procedural feasibility as a consequence of minimizing the discomfort.

Technical modifications especially reduction in size of the hysteroscope caliber, a rare need for anesthetic and introduction of vaginoscopy have improved the tolerance and efficacy of use of vaginoscopy over traditional hysteroscopy.[16]

The indications for traditional hysteroscopy and vaginoscopy are[17]

1. Abnormal uterine bleeding
2. Postcoital bleeding
3. Abnormal pelvic ultrasound findings(polyp, submucous fibroids)
4. Infertility
5. Detection of malignancy
6. Missed IUCD
7. Diagnosis of isthomocele
8. Recurrent miscarriages
9. Clinical or ultrasound suspicion of asherman's syndrome or congenital uterine anomaly.
10. The condraindications for traditional hysteroscopy and vaginoscpy are:
11. Pelvic infection
12. Pregnancy
13. Cervical cancer
14. Heavy uterine bleeding
15. Patients with comorbid conditions
16. Sleep apnea or cardiopulmonary disease
17. Anxiety disorder
18. Complications related to traditional hysteroscopy and vaginoscopy are:
19. Perforation
20. Infection
    1. Air gas embolism
    2. Fluid overload
    3. Haemorrhage
    4. Vasovagal reaction

Post operative infection rates may be higher due to vaginal contamination.[18]

No significant difference has been reported yet in failure rates of vaginoscopic and traditional hysteroscopic techniques

The vaginoscopic approach is associated with reduction in pain, procedural time and side effects, when compared to traditional approach to office hysteroscopy, which employs the use of a vaginal speculum.[19] One study reported the incidence of complications between these two techniques, where the chance of post procedural infection did not differ; otherwise all otherwise all other complications were attributed to the traditional hysteroscopic approach.[20] Procedural success ws comparable between the techniques and where one technique failed, the other proved successful in 75% cases.

6.3 AIMS AND OBJECTIVES OF THE STUDY

- To compare the feasibility, safety and acceptibility of vaginoscopic hysteroscopy and standard hysteroscopy.
- To evaluate the satisfaction of the patient and surgeon in both the techniques.

7. MATERIALS AND METHODS

This is a hospital based prospective study will be conducted on 100 women in department of Obstetrics and Gynaecology , Dayanand Medical College and Hospital, Ludhiana.

7.1 Source of Data

After taking informed consent patients will be randomised into 2 groups.

- Group A (n= 50) patients who will be undergoing vaginoscopic hysteroscopy
- Group B (n= 50) who will be undergoing standard hysteroscopy.

7.2 METHOD OF COLLECTION OF DATA

INCLUSION CRITERIA:

- Infertility
- Abnormal uterine bleeding
- Chronic pelvic pain
- Recurrent abortions

EXCLUSION CRITERIA:

- Pregnant women
- Cancer of the cervix, cervical polyp & cervical stenosis.
- Active infection of the genital tract
- Cardiovascular disease
- Severe obstructive airway disease
- Acute genrallised peritonitis
- Blood dyscarasias and coagulopathy.

STUDY SAMPLE

The study will be performed on 100 females which will be randomized into two groups.

- Group A (n= 50) patients who will be undergoing vaginoscopic hysteroscopy
- Group B (n= 50) who will be undergoing standard hysteroscopy.

NUMBER OF CASES: 100

OUTCOME:

All patients fulfilling inclusion criteria will be recruited for study. Written and informed consent will be taken from all patiens participating in study.

A structured predesigned performa will be used for the study. A detailed history, physical examination and clinical assessment and relevant investigations will be done.

The primary outcome measures studied will be:-

Primary clinical outcome of complete hysteroscopy that is with an acceptable level of patient reported pain,without vasovagal episode or postprocedure pain

The secondary outcome measures studied will be:-

1 Time taken for the completion of the procedure

2 Complications like infection, bleeding, trauma, adverse procedural events (perforation, embolism, fluid overload, haemorrhage)

3 Procedure conversion rates

4 Vasovagal episode

5 Feasibility

6 Acceptibility

7 Satisfaction

STATISTICAL ANALYSIS:

Comparison of vaginoscopic approach with standard office hysteroscopy and their outcomes will be analyzed using appropriate statistical methods. Data will be described in terms of range; mean ±standard deviation (± SD), frequencies (number of cases) and relative frequencies (percentages) as appropriate. Comparison of quantitative variables between the study groups will be done using Student t-test and Mann Whitney U test for independent samples for parametric and non-parametric data respectively. For comparing categorical data, Chi square ($\chi 2$) test will be performed and exact test was used when the expected frequency is less than 5. A probability value (p value)less than 0.05 will be considered statistically significant. All statistical calculations will be done using (Statistical Package for the Social

Science) SPSS 21version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows.

7.3 DOES THE STUDY REQUIRE ANY INVESTIGATIONS OR INTERVENTIONS TO BE CONDUCTED ON PATIENTS OR OTHER HUMANS OR ANIMALS? IF SO, PLEASE DESCRIBE BRIEFLY.

All the above mentioned investigations are routinely performed as per the hospital guidelines. Hence will not pose any financial burden on the patient

7.4 HAS ETHICAL CLEARANCE BEEN OBTAINED FROM YOUR INSTITUTION IN CASE OF 7.3?

Yes, Attached herewith

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PROFORMA

- Sr. No
- Name:-
- Age:-
- Date of admission:-
- Admission number:-
- MRD number:-
- Residential address:- rural/ urban
- Education:- undergraduate/ graduate/ postgraduate
- Occupation:- housewife/ employed
- Parity:-
- Chief c/o
    1. AUB
    2. Infertility
    3. Chronic pelvic pain
    4. Others
- Menstrual history:-
- LMP:-

- Obstetric history:-

    Mode of delivery

    Vaginal

    Caesarean

- Past history

Signature of Candidate **Signature of Supervisor**

- Family history:-
- Nutritional history:-
- Socio economic history
- Mode of delivery:-
- Vaginal
- Caesarean
- Contraception
- General physical examination:-
- Breast:
- P/A :
- P/S:
- P/V:
- INVESTIGATION:-
- BLOOD TESTS
- CBC
- PTI/INR
- APTT
- ESR
- TSH
- PROLACTIN
- RFT
- LFT
- RBS
- USG
- PAP SMEAR

Signature of Candidate **Signature of Supervisor**

- MAMMOGRAPHY
- MRI(anomaly)
- Others
- Pain evaluation (VAS)

During procedure

1. insertion of instruments
2. cervical manipulation
3. insertion of hysteroscope.

After procedure(VAS)

- Complications
    1. Perforation of uterus
    2. bleeding
    3. Trauma to cervix
    4. Infection
    5. others(failure of procedure)
- Duration of procedure
- Feasibility
    1. Completion
    2. Abandon
    3. Requirement of analgesic premedication
- Satisfaction
    1. Patient (scale 0-10)
    2. Doctor- satisfied not satisfied

Signature of Candidate **Signature of Supervisor**

INFORMED PATIENT CONSENT

Date: _____

I…….D/o, W/o, S/o……..…… am willing to participate in the study **"TO COMPARE THE VAGINOSCOPIC HYSTEROSCOPY APPROACH WITH STANDARD HYSTEROSCOPY"** The procedure with its complications has been explained to me in local vernacular language. I have fully understood that no special tests and extra expenditure in any form, merely for the purpose of thesis is being carried out. I am free to opt out the study any time without assigning any reason.

……. ……
Signature of the Witness Signature of the patient

Name:

Signature of Candidate **Signature of Supervisor**

मरीज अनुमति फार्म

तिथि _____

मैं _____ पत्नी/पुत्र/पुत्री _____

निवासी _____

इस शोधकार्य **"TO COMPARE THE VAGINOSCOPIC HYSTEROSCOPY APPROACH WITH STANDARD HYSTEROSCOPY"** में भाग लेने के लिए सहमत हूँ। मैं इस शोधकार्य में भाग लेने के लिए अपनी स्वेच्छा से तैयार हूँ। मैं पुष्टि करता/करती हूँ की यह स्वीकृति देने के लिए मुझे कोई आर्थिक प्रलोभन नहीं दिया गया और न ही दबाव डाला गया है। मुझे इस शोधकार्य का उद्देश्य स्पष्ट कर दिया गया है और मुझे यह विश्वास है की यह विज्ञान और मानवता के लाभ के लिए है। मुझे इस शोधकार्य में होने वाले जोखिम के बारे में समझा दिया गया है और मेरी समझ में यह जोखिम बहुत मामुली है।

मैं इस शोधकार्य में भाग लेने के सम्बन्ध में किसी भी समय अपनी अस्वीकृति व्यक्त कर सकता/सकती हूँ और मेरे अस्वीकृति व्यक्त करने का मेरे इलाज पर कोई प्रभाव नहीं पड़ेगा।

_____	_____
गवाह के हस्ताक्षर	रोगी के हस्ताक्षर/अंगूठे का निशान
नाम:	नाम:

_____

अन्वेषक के हस्ताक्षर

_____

विद्यार्थी के हस्ताक्षर

ਮਰੀਜ਼ ਰਜ਼ਾਮੰਦੀ ਫਾਰਮ

ਮਿਤੀ_____

ਮੈ_____ਪਤਨੀ/ਪੁੱਤਰ/ਪੁੱਤਰੀ_____

ਵਾਸੀ _____

“TO COMPARE THE VAGINOSCOPIC HYSTEROSCOPY APPROACH WITH STANDARD HYSTEROSCOPY” ਤੇ ਚਲ ਰਹੀ ਖੋਜ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਰਜ਼ਾਮੰਦ ਹਾਂ। ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਮੈ ਆਪਣੀ ਮਰਜ਼ੀ ਨਾਲ ਤਿਆਰ ਹਾਂ। ਮੈ ਇਹ ਦਸਣਾ ਚਾਹੁੰਦਾ ਹਾਂ/ ਚਾਹੁੰਦੀ ਹਾਂ ਕੇ ਇਹ ਰਜ਼ਾਮੰਦੀ ਦੇਣ ਵਾਸਤੇ ਮੈਨੂ ਕਿਸੇ ਵੀ ਤਰਾਂ ਦਾ ਲੋਭ-ਲਾਲਚ ਨਹੀ ਦਿੱਤਾ ਗਿਆ ਅਤੇ ਨਾ ਹੀ ਕੋਈ ਦਬਾ ਪਾਇਆ ਗਿਆ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਦਾ ਮਨੋਰਥ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਭਰੋਸਾ ਦਵਾਇਆ ਗਿਆ ਹੈ ਕੇ ਇਹ ਖੋਜ ਵਿਗਿਆਨ ਅਤੇ ਮਾਨਵਤਾ ਦੀ ਭਲਾਈ ਲਈ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਵਿਚ ਹੋਣ ਵਾਲੇ ਖਤਰੇ ਬਾਰੇ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਯਕੀਨ ਹੈ ਕੇ ਇਹ ਖਤਰਾ ਬਹੁਤ ਮਾਮੂਲੀ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਦਾ ਢੰਗ – ਤਰੀਕਾ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ।

ਮੈ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਬਾਰੇ ਆਪਣੀ ਰਜ਼ਾਮੰਦੀ ਕਿਸੇ ਵੀ ਸਮੇ ਵਾਪਸ ਲੈ ਸਕਦਾ ਹਾਂ/ ਸਕਦੀ ਹਾਂ ਅਤੇ ਮੇਰੀ ਰਜ਼ਾਮੰਦੀ ਵਾਪਸ ਲੈਣ ਦਾ ਮੇਰੇ ਇਲਾਜ ਤੇ ਕੋਈ ਅਸਰ ਨਹੀ ਹੋਵੇਗਾ।

_____ _____

ਗਵਾਹ ਦੇ ਹਸਤਾਖਰ ਮਰੀਜ਼ ਦੇ ਹਸਤਾਖਰ

ਮਿਤੀ_____ ਮਿਤੀ_____

ਪਤਾ _____ ਪਤਾ _____

_____

ਨਿਰੀਖਕ ਦੇ ਹਸਤਾਖਰ

_____

ਸਿਖਿਆਰਥੀ ਦੇ ਹਸਤਾਖਰ